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North America's Wood Pulp, Paper, Paperboard
and Cellulose Industries

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"The Cellulose Age"

EDITORIALS

The CVA and New Farm Program

Two recent proposals of the Truman "Fair Deal" call for earnest appraisal by this industry.

One is the President's request for the establishment of a Columbia River Valley Authority. The other is the new farm program proposed by the Secretary of Agriculture. Before examining either proposal it is pertinent to recall a statement by Lyle F. Watts, chief of the U. S. Forest Service, who has said *"The crux of the whole forestry problem is the small landholdings. Three-fourths of our commercial forest land is in private hands."* More than 75% of the private forests are in the hands of owners of tracts of less than 5,000 acres.

Bearing that fact in mind, and recalling the Chief Forester's statement, it is significant to note that under the proposed new farm program the farmer would be compelled—and compelled is the exact word—he would be compelled to comply with "minimum and sound soil-conservation practices." Soil conservation embraces what grows on that soil, whether it be wheat or trees. As the New York Sun points out, this would logically lead to dictation from Washington of the land use on all farms, just as it would logically lead to dictation on marketing procedures. Finland and Sweden have had a taste of this, and the result, according to well informed sources, is one of the important reasons why their wood procurement costs are now much higher than in the U. S.

As to the proposed Columbia River Valley Authority the President has been more than frank. He has said that it would bring government closer to the people of the Pacific Northwest. It would, indeed! And he has unmistakably implied greater control over, and greater unification of, Federal agencies dealing with any phase of conservation. The proposed CVA is not merely a problem involving kilowatts of electric energy and who shall control and sell them. You may be sure that it also involves trees and who shall control, sell, and make use of them.

Let us quote again from the Chief Forester of the United States, from the September 14, 1947, issue of "This Week." Says he: *"Only by public control can we hope to stop destructive cutting on a nationwide scale. I say the Federal government should set up standards of forest practice and take the lead in such control."*

That is plain enough, and Mr. Watts knows that it is plain enough, because he adds: *"For saying this I have been accused of favoring just about every shade of socialism and dictatorship."*

Complete Federal control of all forest lands—including farms, bear in mind—has not progressed as quickly as the Administration, and notably the Forest Service, would like. But the new farm program would do it in a hurry on a nationwide scale; and the CVA would do it insofar as the greatest lumber and pulp producing area in the country is concerned.

The pulp and paper industry, individually and collectively, should study both these strong moves which inevitably lead toward socialism and take its stand. So should labor organizations whose welfare depends on the maintenance of a strong, economically healthy industry. Both programs are likely to be

attractive to large segments of the population who do not realize they will foot the bill, in cash and in birthright.

Trying to Make Newsprint Industry the Goat

The American Newspaper Guild, eager to counteract the contention that salaries and wages constitute the major cost problem for the country's newspapers, has been trying to shift responsibility to the newsprint industry.

And again the Guild, as has often happened in the past, shows either ignorance of, or disregard for, the facts.

In a 140-page book entitled "The Newsprint Problem—Ten Questions and Answers," by Clara H. Friedman, the Guild contends that the newsprint producers have grown prosperous at the expense of newspaper publishers and their employees; that a Canadian newsprint "monopoly" has been largely to blame for reducing the number of dailies with consequent curtailment of employment, and has unhesitatingly exploited its advantage in a seller's market.

The American Publishers Association, as a matter of fact, has already endeavored to straighten out the Guild's erratic thinking on the subject of newsprint supply. The publishers, in a bulletin issued Feb. 24, question many of the statements in the Guild's book and clear the newsprint industry of many of the accusations.

For instance, the publishers deny that the newsprint industry has traditionally operated at less than full capacity because production has been geared, on the whole, to price policies dictated by restriction of output. Actually, the publishers point out, Canadian and U. S. mills have operated at their peak since wartime restrictions were lifted. It is a matter of record that Canadian newsprint mills ran throughout 1948 at peak of capacity, producing more than 4½ million tons of paper and, in spite of high construction costs, they spent \$145 millions on expansion during the past three years.

As for the charge of curtailed employment, there actually were 31 more daily and Sunday newspapers in the U. S. in 1948 than in 1947; circulations reached new all-time high records for the 8th year in a row; newspapers were growing in size and also advertising records were smashed.

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Watch for our 1949 annual NORTH AMERICAN REVIEW NUMBER. It's the Next Issue Out!

MANY RESERVATIONS FOR VICTORIA MEETING

The way that reservations are pouring in for the joint U. S.—Canada industry meeting in quaint Victoria, B. C., May 20-21, indicates this will be one of the most popular Far West gatherings. Carl Castle, Dow Chemical Co., Textile Tower, Seattle, is handling reservations.

SUPERINTENDENTS FOR SPRINGFIELD MILL

Hugo Trygg has been appointed pulp mill superintendent, and Tony Siebers, paper mill superintendent, of the new Springfield, Ore., kraft containerboard mill of the Pulp Division, Weyerhaeuser Timber Co.

Brief announcement of their selection came as we went to press, by Marvin Jones, mill manager. Both will move from Longview, Wash., where Mr. Trygg, formerly with Marathon in Canada, was shift superintendent at the Weyerhaeuser Longview kraft mill, and Mr. Siebers, formerly at Thilmany in Wisconsin, was superintendent at Longview Fibre.

Story of Hardy S. Ferguson Goes to 1889 Classmates

Copies of March **PULP & PAPER** which carried the unusual story and pictures of Hardy S. Ferguson, noted pulp and paper mill engineer of New York City, on the occasion of his receiving this industry's 1949 Gold Medal, have been sent to other members of his class of 1889 of Dartmouth College.

He is the youngest of the nine surviving members of that class and the class secretary, Ralph S. Bartlett, Boston attorney, arranged to have them sent to the others. Also a copy of the story was sent to Charlotte Ford, alumni recorder at Dartmouth.

John Inglis To Build New Mill In India

Major J. E. Hahn, president of John Inglis Co., Toronto, has returned to Canada with a \$2,000,000 contract to design and build a complete bamboo pulp and paper mill for Ballarpur Paper & Straw Board Mills, Ltd., in Ballarpur, Central India. This project represents a part of India's program to triple her production of paper. It is being financed by private capital and the government.

Gottesman Awarded High Swedish Honors



D. Samuel Gottesman (left), president of Gottesman & Co., Inc., and Central National Corp., and director of Rayonier and Eastern Corp., was presented April 11 with the insignia of the Swedish Royal Order of the North Star, with the rank of Knight First

Class, bestowed by King Gustaf V. of Sweden.

Presentation was made in New York by Swedish Consul General Lennart Nylander in the presence of Swedish Ambassador Erik Boheman and a notable gathering of officials and business men. It was in recognition of Mr. Gottesman's achievements in strengthening cultural relations between the U. S. and Sweden, particularly the establishment in 1947 of the Gottesman Lectureship at the University of Upsala, Sweden.

Mr. Gottesman, expressing his appreciation and thanks, commented: "The administration of human affairs has fallen behind our technological advances. We must develop the ethical, cultural and philosophical values and learn from history and literature. In that way we can build up the liberalism and understanding that is so necessary to win the race against the weapons of man's own creation. It is to be hoped that the series of lectures in the humanities which are being given at Upsala University in Sweden will be of assistance in pointing the way."

A New Record

North American newsprint mills produced 534,100 tons of newsprint in March—more than any other month in history!

They produced 8.9, or 122,959 tons, more in the first quarter of 1949 than in any previous quarter.

Harry M. Hooker Dies at Age of 75

Harry M. Hooker, industrialist and descendant of Thomas Hooker, founder of Hartford colony of Connecticut, died at Niagara Falls, N. Y., April 9. He was 75.

Mr. Hooker, former president and chairman of the board of the Hooker Electro-Chemical Co., was a native of Rochester, N. Y.; was educated at Philips Academy, Andover, Mass., and the University of Rochester. He joined Hooker company in 1913, a few years after his brother, Elon, had founded the firm. Upon his brother's death in 1938, he was elected president, a post he retained until 1945, and was chairman until this year.

CIO Loses in Kalamazoo

After one tie vote, a second election among employees of the Time, Inc., coating plant at Kalamazoo, Mich., to select their bargaining agent, resulted in 81-62 victory for the AFL Pulp, Sulfite and Paper Mill Workers union over the CIO Paperworkers.

COMING INDUSTRY MEETINGS

Pa.-N.J.-Del. Div. Supt's. Ass'n.—
Abraham Lincoln Hotel, Reading,
Pa. April 30-May 1

Forest Products Research Society
Annual Meeting—Civic Auditori-
um, Grand Rapids, Mich. May 2-4

Kalamazoo Valley Technical Sec-
tion—Columbia Hotel, Kalama-
zoo May 5

Miami Valley Div. Supt's. Ass'n.—
Orr Felt & Blanket Co., Piqua,
Ohio May 6

Mich. Div. Supt's. Ass'n. (Ladies
Night)—Harris Hotel, Kalamazoo
..... May 7

Packaging Machinery Institute
(Spring Meeting)—Hotel Dennis,
Atlantic City, N. J. May 9

National Packaging Show—Public
Auditorium, Atlantic City.....
..... May 10-13

Northwestern Div. Supt's. Ass'n.—
Hotel Conway, Appleton, Wis.....
..... May 13-14

Chicago Technical Section—Bar As-
soc., Fields Bldg., Chicago..... May 16

New England Technical Section—
Roger Smith Hotel, Holyoke,
Mass. May 20

Empire State Technical Section—
Queensbury Hotel, Glens Falls,
N. Y. May 20

Coast Supts. and Western Branch
Canadian Technical Section Joint
Meeting—Empress Hotel, Victoria,
B. C. May 20-21

Del. Valley Tech. Section—Engi-
neers Club, Philadelphia..... May 26

Canadian Pulp & Paper Assoc.—
General Brock Hotel, Niagara
Falls, Ont. June 1-3

N. Y. Pulpmen's Golf Tournament—
Knollwood Country Club, White
Plains, N. Y. June 7

Superintendents Convention—Hotel
Haddon Hall, Atlantic City, N. J.....
..... June 15-17

N. Y. Canadian Div. Supt's. Ass'n.—
Champlain Hotel, Bluff Point,
Plattsburgh, N. Y. Sept. 8-10

National Tech. Ass'n. Fall Meeting—
Multnomah Hotel, Portland, Ore....
..... Sept. 12-16

Wallboard Conference (Auspices N.
E. Wood Utilization Council &
Harvard U.)—Cambridge, Mass.....
..... Sept. 16

So. Eastern Div. Supt's. Ass'n.—Ho-
tel Roanoke, Roanoke, Va. Oct. 14-15

Engineers' Conference, Statler Hotel,
Boston Oct. 31-Nov. 3

Pacific Chemical Exposition—Civic
Auditorium, San Francisco.....
..... Nov. 1-5

Paper Industry Salesmen—
Midston House, New York City—
Every Monday, 12 noon to 2 p.m.

Allied Industries' Luncheon Club—
Second Monday of month, 12 noon,
Commodore Hotel, New York.

EVEREST SEES A BIG YEAR

Predicts Near Record Consumption

At a moment when production rates were down to 85% to 89% capacity and with one full quarter of the year already over, D. Clark Everest (right) president of Marathon Corp., and a past Gold Medal winner of the industry's technical division, really stuck his neck out with a startling prediction in an address before the National Paper Trade Association in New York on April 5.



For the third time in less than two months he put himself right out on a limb with the brand of courageous industrial statesmanship for which he is so well known in the industry, with this ringing prediction:

"I still feel that the (U.S.) consumption of paper and paperboard for 1949 will be at or very near the 1948 level, depending on the ability of the United States and Canada to physically meet the demand."

The 1948 all-time record for consumption in the United States was 26,257,000 tons—1½ million tons over the previous record year, 1947, and fully twice as great as the average of the decade before the war!

This was the third of a series of sharply analytical speeches by Mr. Everest in less than two months on the changing markets—the other two, equally optimistic, having been given at Paper Week meetings, reported in the last issue of **PULP & PAPER**. It seems significant that already when he stepped before his NPTA audience, the industry as a whole was feeling psychologically a lot better about its settling down process than it had during Paper Week.

Predicts Manpower Shortage

Basing another surprising prediction on his experiences in two war periods very close to government security programs, Mr. Everest also said:

"If my assumptions are right this country is faced with the worst manpower shortage this country has ever experienced. Continuous pressure for shorter work weeks will not help this situation."

That Mr. Everest has not been a bullish prognosticator in the past is revealed by looking back through previous volumes of **PULP & PAPER**. In 1945 he said '46 paper production minimum would have to be 17,400,000 tons and it hit 19,277,000; back in Sept. 1939, in midst of uncertainty a few days after European war was declared, he predicted a record 13,000,000-ton year and it climbed to 13,510,000. The 1938 production had dropped back to

11,380,000 and that recession hung over into early '39.

Here is some of the reasoning Mr. Everest laid before the NPTA:

"I want to emphasize there is no economic substitute for paper in 99% of its uses. If that is not a sound basis for any industry, then Adam Smith wasted a lot of time writing books back in the 1700's.

"We are passing through a period of minor adjustment which may have been overdue, but it certainly is not a forerunner of a serious one unless everyone is determined to make it so—come hell or high water.

"Even fine paper manufacturers, who probably had more occasion to gripe about business than anyone else, state that placement of business picked up considerably during March. I cannot conceive how there can be any long-sustained lack of demand for the products of this industry.

"Consumption will be maintained at a high level because the current income of the people is high. Income will be maintained at a high level unless increased taxation develops.

"Exports will continue high, construction and non-durable goods production will be high and the social security program will maintain income for those who become unemployed; the overall decreases in living costs helps to ease the whole situation. The money market is easy and there is no money squeeze.

"Fine paper production is running less than consumption and there is a possibility of a squeeze if inventories are drawn down further. In printing papers supply and demand are about in balance at present levels. In coarse papers and tissue papers unshipped orders at mills were in a normal healthy condition. True

Ferguson Predicts Improvement Ahead

"It is my opinion that the present adverse condition will come to an end during the second quarter of 1949 and through the third and fourth quarters, demand will return to higher levels," said Roy K. Ferguson, president and chairman of St. Regis Paper Co., before stockholders on April 8.

"I stated a year ago there was evidence that prices were beginning to show signs of 'leveling off.'" He reported first quarters sales at \$34,903,000 compared with the record \$40,394,000 in first quarter 1948.

competition has returned and is welcome. The mills have been striving mightily to put themselves in a position to supply their customers. Is it not something to rejoice over that we have now accomplished what we set out to do?

"There is only one fly in the ointment on this proposition of supplying demand in every line. That is the industry's ability to produce a sufficient amount despite the increased capacity. Existent equipment has been worked to the limit without any breathing spell for proper repairs and replacements. It is possible that before the year ends the mills will not be able to meet the demand with deliveries in accordance with the purchasers' wishes.

Some Other Everest "High Points"

"Careful analysis shows that over a period of 35 years the consumption of goods, which is the basis of all business, has been on the increase at least 85% of the time.

"Consumption was 15.9 million tons in 1939 but in 1948 it reached the all time high of 26¼ million tons, or nearly 10 million tons increase in ten years. If you

(Continued on page 88)

Clark Everest Speech Cheers Some At NPTA Meeting; Others Not Comforted

If there was some gloom at the 46th annual convention of the National Paper Trade Convention held at the Waldorf-Astoria in New York City on the week of April 4th, a leader in the manufacturing end of the industry did his best to dispel it.

The executive was D. Clark Everest, president of Marathon Corp., who came east from Menasha, Wis., to expand on the message he delivered at the industry's paper week (April, 1949, **PULP & PAPER**). His NPTA address is given, in part, on this page:

"Nobody on earth," he told the jobbers and merchants, "knows more about the reason for the falling off in placement of business than you gentleman. You, with everyone else in the country, were listening to every radio commentator, every economic service, every government agency, warning everybody that last fall was the time to sell everything—dump it regardless of inventories, because some dire calamity was in the offing."

Mr. Everest said: "Why deal with something that indicates trends back in 1947? . . . This is likely to be our biggest production year. But at the present operating rates of 1949 there are 2,000,000 tons of capacity idle, industry men observed."

Not all the attendance at the NPTA conference would be comforted. There was caution mixed with the optimism, but the general spirit of the distribution segment of the industry was good and it was plain that the initial gathering in the Jade Room had come there for two purposes: to find out more about the score, and to get ideas on how to sell more paper.

Other leading speakers were George Olmsted, president of S. D. Warren Co.; John Zink, vice president of Hammermill Paper Co.; Arch Crawford, president of the National Association of Magazine Publishers; and E. W. Tinker, executive secretary of APPA.

NPTA President Ralph G. Luff announced that Arthur H. Chamberlain would be elevated to a new post: Assistant to the president, and Willard G. Leathers will take his place as executive secretary.

NO "SLAVE LABOR" HERE



LABOR LEADERS FROM ITALY visited Pacific Coast paper mills to see for themselves if Communist charges of "slave labor" in the Crown Z operations were true.

Here they are at luncheon at Crown Willamette Inn at Camas, Wash. Back row (left to right): GIOVANNI CANINI, Vice Pres. of Italian Confederation of Labor; APPIO ROCCHI, Italian Republican party leader; JOHN SHERMAN, Vice Pres. of AFL Pulp, Sulfite and Paper Mill Workers and top officer of that union on Coast; and GIULIO PASTORE, General Sec'y of Italian Confederation of Labor.

Two men at side table are (l. to r.): BUD HALL, a local President at Camas for the AFL-PS&PMW; and A. E. BROWN, Vice President of the AFL Paper Makers union and top officer of that group in the Far West.

Officers of two AFL unions, Brotherhood of Pulp, Sulfite and Paper Mill Workers and Brotherhood of Paper Makers were hosts to three top ranking labor leaders from Italy during a 20-hour visit to Portland, Ore., and Camas, Wash., on a tour of the Pacific Coast.

John Sherman and A. E. Brown, international vice presidents, respectively, of the two unions, handled arrangements for the trio's visit to the Portland area which included breakfast in Portland with 20 Portland, Vancouver and Camas labor officials and a visit to the Camas, Wash., mill of Crown Zellerbach Corp. On the previous day the trio had visited the San Leandro, Calif., plant of Western Waxed Paper Co.

The visiting Italian labor officials were Giovanni Canini, vice president of the Italian Confederation of Labor; Appio Rocchi, economist and Italian Republican party leader; Giulio Pastore, general secretary of the Free Italian Confederation of Workers. The trio are anti-Communist leaders and came to the U. S. to study American production methods, labor-management relations and Communist charges that "slave labor" is used in American industrial plants.

Italian Communists charged that J. D. Zellerbach, on leave from the presidency of Crown Zellerbach Corp. and serving as Economic Cooperation Administration director in Italy, operates his company's paper mills with "slave labor." Their visit to the U. S. was sponsored by ECA under the Marshall plan program of permitting foreign industrialists and labor leaders to see how American industry operates.

At Camas the labor leaders were given free run of the plant, with Italian born employees and union official as guides. They questioned employees as to wages, living standards and working conditions and visited homes of Italian-speaking employees.

Mr. Pastore, spokesman for the group, said they found no signs of "slave labor."

Labor Negotiations Under Way in Farwest

Annual labor negotiations got underway in mid-April on the Pacific Coast. The P. C. Association of Pulp and Paper Manufacturers met April 23-24 at the Benson Hotel in Portland, Ore., going into conclave on the 25th with representatives of the two AFL international brotherhoods.

Owing to the fact that the management's co-chairman, J. D. Zellerbach is in Italy as head of the ERA in that country, Col. Alexander Heron was to take his place, with John Sherman again labor co-chairman.

Mills Reduce Schedules

James L. Madden, President of Hollingsworth & Whitney Co., today confirmed reports that operations at the company's Waterville, Maine, mill are being scheduled on the basis of a 4-day rather than 5-day week. Some other New England and Eastern mills have similarly reduced schedules.



IN INDUSTRY NEWS (left to right):

S. J. MERGENHAGEN began new duties as Assistant Sales Manager of Heppenstall Co., Pittsburgh, makers of chipper knives, in April. He joined Heppenstall in 1945, and was formerly district sales representative in Philadelphia.

P. A. THOMPSON is new Product Supervisor for new heat transfer equipment shop opened by A. O. Smith Corp. of Milwaukee. He was formerly with Alco Products Div. of American Locomotive Co.

S. I. ANDERSON, recently promoted to Assistant to the General Sales Manager of Hooker Electrochemical Co., Niagara Falls, N. Y. Prior to this he was assistant eastern sales manager. He has been with the Hooker sales department since 1933.

E. A. JOHNSTON has been appointed Comptroller of Minnesota & Ontario Paper Co., Minneapolis. He was formerly Office Manager at International Falls mill and at Minneapolis.



IN INDUSTRY NEWS (LEFT TO RIGHT):

THOMAS H. LATIMER, formerly Vice President and Chief Engineer of John Waldron Corp., named Chief Engineer of The Moore and White Co., Philadelphia.

ARTHUR DAMMANN, of Seattle, joined Bumstead, Woolford as Sales Engineer for instrument controls, manufactured by The Foxboro Co., and the Hays Corp.

D. H. KINCAID, recently appointed to research staff of Minnesota and Ontario Paper Co. Mr. Kinsaid has been appointed Superintendent of Insulite base products research division.

JOHN BUSS, native of Kalamazoo, Mich., recently elected to the Chairmanship of the Canadian Paper and Pulp Ass'n. Technical Section. In 1947 he became Assistant Manager of Production, Provincial Paper, Ltd., Toronto. He had worked at Bogalusa, La., Three Rivers, Que., and Nashua, N. H., mills.

SPECTACULAR WOODS TRIP

Will Highlight National Convention



HARRY E. MORGAN, Manager of Weyerhaeuser's Lumber Division Branch in Longview, Wash.—largest sawmilling operations in the world—is on the woods trip committee arranging this event for the National Technical Association Fall Meeting in Portland, Ore., next September.

A long-to-be-remembered 40-mile train ride into giant western timber up the slopes of snow-capped 9,750 ft. Mt. St. Helen will be a highlight of the National Fall Meeting of the technical division of the industry come next September.

The men delegates—all who wish to go—will start out from Weyerhaeuser Timber Co.'s great and varied forest industries center in Longview, Wash., winding eastward on a logging railroad, with breath-taking scenic vistas all the way, including passage over what is reputedly the highest logging bridge in the world.

The womenfolk, not to be left out, will be guests on a scenic trip to the ski slopes of Mt. Hood and Timberline Lodge.

Howard W. Morgan, manager of the Pulp Division; Harry E. Morgan (no relation), manager of the Lumber Division Longview Branch, and Clyde Corman, manager of logging, are the committee of top Weyerhaeuser officials who are arranging the trip to the Weyerhaeuser Tree Farm on St. Helens slopes.

Several hundred delegates will arrive in convention headquarters, Multnomah Hotel, Portland, Ore., on the afternoon of Sun., Sept. 11, after stops at Sun Valley and Bonneville Dam, aboard a Union Pacific special train. The woods trip will be the next day—Sept. 12. Mill visits on another day and two days of technical sessions follow.

Special observation cars and coaches on the Weyerhaeuser train will head eastward to the woods as soon as delegates arrive that morning in Longview, 50 miles



HERE ARE SOME OF SPECTACULAR logging and forest views on lower slopes of snow-covered Mt. St. Helens, in the Cascade range near Longview, Wash., which will be seen by delegates to the National Technical Convention to be held in Portland, Ore., Sept. 11 to 15. Weyerhaeuser Timber Co. will be hosts on this trip, taking all delegates who wish to go on specially equipped logging railroad cars. These pictures were taken in Weyerhaeuser's Mt. Helens Tree Farm.

from Portland. First stop will be at Headquarters Camp and then on to one of the operating camps where loggers live permanently and where logging will be seen.

Results of modern forestry-management practices will be seen. Bad effects of fires and actual results of natural and artificial reseedling will be witnessed. Giant trees will be felled; skidding operations by both skidders and cats will be seen; loading operations will be under way. There

will be pre-logging, re-logging and fire protection work. Stands of mature trees—Douglas and Noble fir, spruce and hemlock—will be shown.

A famous hearty logging camp lunch will be served and the train will return in time for the tourists to get back to Portland for dinner.

All inquiries should be addressed to TAPPI Convention committee, Hotel Multnomah, Portland, Ore.

BATHURST'S INGENUOUS NEW PLANT

Wood Merry-go-Round

One of the most strikingly original and ingenious wood barking and wood handling plants in all of North America is in successful operation today on the Nipisiquit River in remote northeastern New Brunswick.

It is quite a sight to behold, this trimly efficient wood "Merry-Go-Round" housed in a 135-ft. square steel and tile barker building on the bank above an equally efficient floating haul-up, where a conveyor and a jackladder automatically adjust their level to ocean tides that run as high as 7 ft. in the spring.

Bathurst Power & Paper Co., Ltd., a company already distinguished in the industry for progressive contributions, especially in engineering, can be justly proud of these new additions to its establishment. By word of mouth, the news of this unusual plant had circulated rather widely. Pictures with this article were taken by a **PULP & PAPER** editor who, in a personal visit, verified all the enthusiastic reports about the mechanical wonder and this is the first published report about it.

Above three drum barkers—two inside and one outside the new plant—are two revolving circular steel tables. On and off these tables wood comes and goes, according to an intricate but precise pattern—to or from the barkers, from the floating haul-up and to or from the wood piles out in the yard, and the barked wood is directed to three selected destinations—the sulfite mill, the kraft mill or the groundwood mill.

There are 150 tons of steel in the tables and chutes and sorting shears. Chain and cable conveyors travel various directions. All electrical controls are handled by one man and just four men are needed in the entire plant and only two on the floating haul-up. One other man has a steady job cleaning the building.

Barks 2,000 Cords a Day

When visited by **PULP & PAPER**, about 2,000 cords of 4-ft. wood, averaging 6 to 7 inches in diameter, spruce, balsam and jack pine, were being put through "the works" in a 24-hour day.

As we stated, it takes just six men now on each of three shifts to operate the entire wood barking and conveying set-up. It used to take 65-70 men divided up into three shifts of 22 or more men each to do a comparable but not nearly as fast and smooth a job.

Generally taking an active part in overseeing this new development and contributing his share of ideas was President R. L. Weldon of Montreal who, in the old days, was chief engineer of the Inter-



R. LAURENCE WELDON, of Montreal, who is President of Bathurst Power & Paper Co. An ex-I.P. Chief Engineer, he had active role in creating new wood plant at Bathurst.

national Paper Co. organization. In 1936 he joined the Bathurst Power & Paper Company Limited and became President of that organization. Mr. Weldon, incidentally, is also chairman of the Joint Administrative Committee of the Pulp & Paper Research Institute of Canada.

William St. Laurent, consulting specialist on wood handling, plant and equipment, of Montreal was engaged by Mr. Weldon to design the layout, which he did incorporating most of his original ideas, together with others from the company management.

J. Gordon Chalmers, manager of operations, whose many years of experience in mechanical assignments as he worked up through the ranks at Bathurst stood him in good stead in this project; and John A. Hanna, mill manager; Clyde W. Baggs, chief engineer; E. C. Bannerman, plant engineer; and G. E. McLellan, electrical superintendent, were those who took part

in planning and carrying through the project to completion.

The Bathurst mill has capacities for 250 tons of kraft pulp, 100 tons of sulfite and 100 tons of groundwood daily. It makes 425 to 450 tons of products, all paper and board except 80 tons of dried and baled market sulfite pulp. Container, corrugating, liner and boxboard are principal products. It buys some bleached pulp for patent board. Two 160-inch Fourdriniers and 132-inch cylinder machine, a pulp dryer and six Waterous magazine grinders are among major equipment. This is what the new wood system serves.

Wood from the Bathurst mill comes from two principal sources. A large portion of it is dumped in the Nipisiquit River about 60 miles from the mouth and driven to the mill. Also a substantial supply is towed in booms from the scenically famed Gaspé Peninsula across Chaleur Bay.

Description of Equipment

A short distance out from the jackladder are two side-by-side underwater propellers driven by 20 hp motors which create a current to carry the logs on to the ladder. This underwater agitation to move wood on to jackladders, saving hand labor was first used at Corner Brook, Newfoundland in 1928. It has since been considerably improved mechanically and recently was adopted in several Eastern Canadian mills. Port Arthur Shipbuilding

GROUP OF SOME OF THE KEY MEN at Bathurst mill (L. to R.): PERCY C. AUSTIN, British-born Kraft Supt.; GORDON ALLO, Process Supt. and a McGill alum; E. C. BANNERMAN, Plant Engineer, who came from steel industry last summer, and ROBT. A. JOHNSTON, Control Supt., formerly with Shawinigan Chemicals.

Unfortunately, Operations Mgr. Gordon Chalmers; Mill Mgr. John Hanna and Chief Eng. Clyde Baggs, were away from the mill when this picture was snapped by **PULP & PAPER**'s visiting editor.



Company provided the propellers and equipment at Bathurst.

Four-foot wood is dumped from jackladder on to a chain conveyor carrying wood 300 feet up the river bank into the new barker plant. This conveyor is hinged about a third of the way up the bank. The lower third is in a truss and raises and lowers with the tides, as does the jackladder and other equipment below. Now only two men are needed to handle wood at these lower operations.

All three barkers were supplied by Canadian Ingersoll Rand and are the riveted, double-section drum type, each 12 ft. by 45 ft. Adjustable 8-ft. long steel shears, 18 inches high, are used on the turntables and at head of conveyors to direct movement of barked and unbarked wood. The wood that comes up from the lower float can be sheared off as desired to any one of the three drum barkers. One barker is outdoors, but parallel position to the two under cover, providing additional service in summertime when there is more barking done than in winter.

It is contemplated that at some future date another building will be constructed and a fourth barker may be installed, with probably all of them under cover.

From the drum barkers, cleaned wood is returned up a chain conveyor to the upper revolving sorting table. The lower table is about two feet below the upper one and revolves outside the one above. Then, about two feet above the upper table is the operations table where all electrical operating equipment is located. Thus, the wood-handling tables and con-



trol center are built up pyramid-like with three levels.

Outside diameter of the lower and outer feeding table is 58 ft. and inside diameter is 46 ft. The outside diameter of the upper and inner sorting table is 36 ft. and the inside diameter is 24 ft. Thus, there is actually a six-ft. wide circular steel surface on each level on which the wood travels.

The central operating table or floor at the top is, therefore, of 24 ft. diameter (inside diameter of the upper sorting table).

There are five adjustable shears in all. Three are on the lower sorting table, one for shearing off wood to the barking drums. Two are on the upper sorting table, one to shear off wood to the lower table and one to shear off wood to the yard.

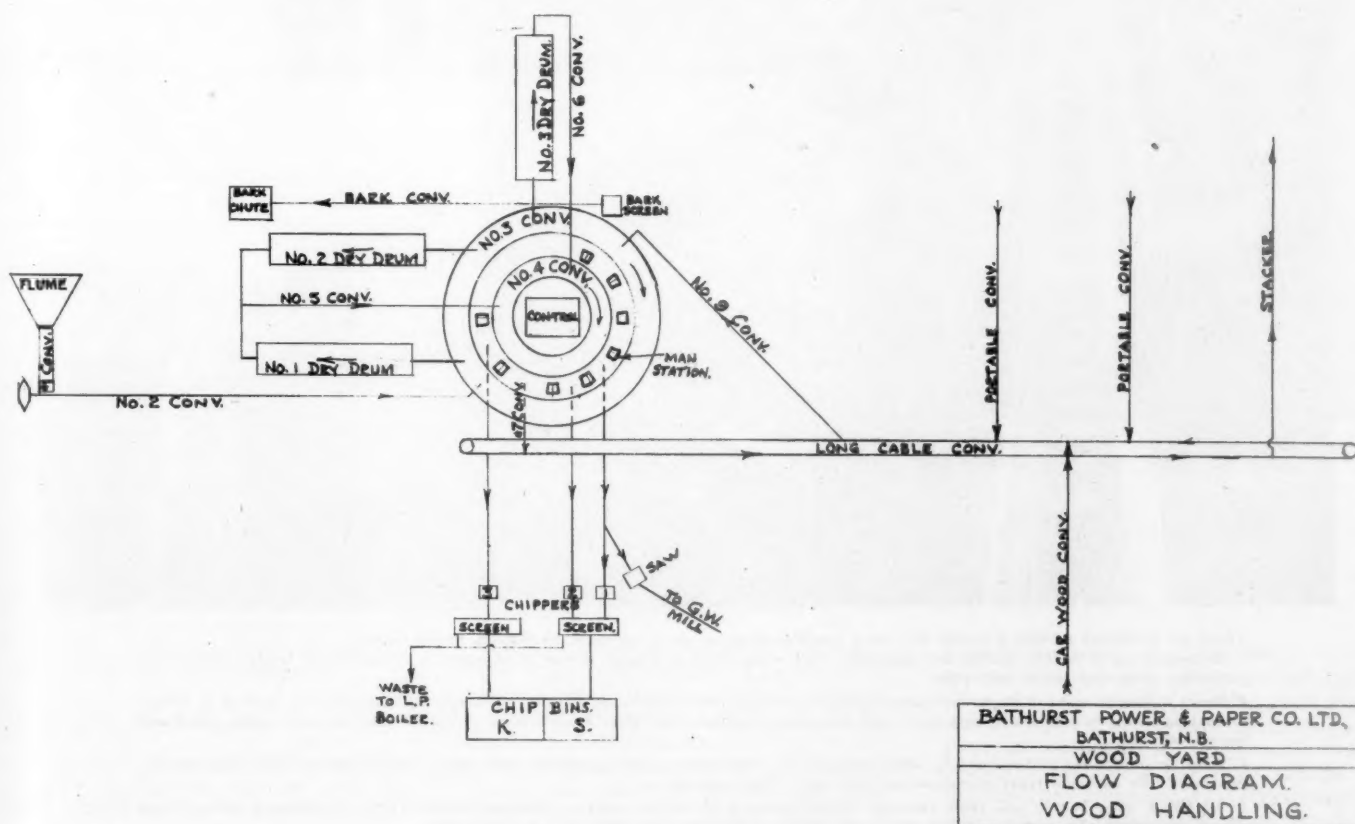
At strategic points around the upper sorting table are three monitors or "man-stations" which look a little bit like crow's nests on a ship. In two of these stations is a man with a hook who picks wood off the revolving table and sends it down a

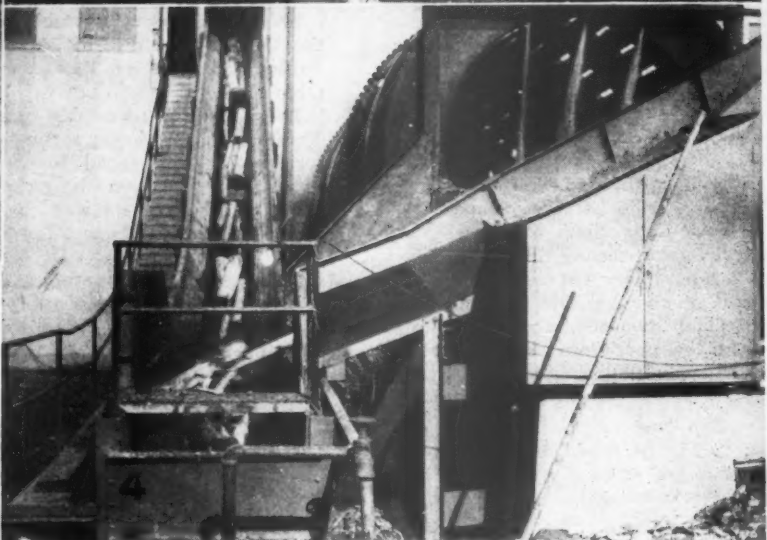
PHOTO AT LEFT, taken in dark area, however, shows two of revolving circular tables in Bathurst's new "Merry-Go-Round" wood plant. At left, unbarked wood is on lower feeding table and at right can be seen upper sorting table with cleaned wood on it. A shear can be seen, and in middle is chute for cleaned wood.

AT RIGHT IS ANOTHER VIEW of "Merry-Go-Round." Built like a pyramid turret, top deck, visible at left of this picture, is operating deck and located here are electrical controls. Next is circular upper sorting table, which revolves, carrying cleaned wood. Three men shown in monitors select and hook off wood into chutes beside them—one to kraft mill, one to groundwood and sulfite, and one back to barkers for better cleaning. Lower revolving feeding table for unbarked wood is third and lowest deck of the "turret." It is below and to right of these men.

chute on to a chain conveyor to the three mills. One man selects for the kraft mill, the other for both groundwood and for sulfite.

In the third monitor a man can be stationed to pull wood off if it is not barked properly and drop it back on the lower table and back to the drum barkers again. This monitor was not occupied and apparently this emergency work was not being found necessary at the time that





VIEWS AT BATHURST POWER & PAPER CO.'s new wood preparation plant, all taken by PULP & PAPER editor.

1. Closeup of top of floating haul-up and jackladder. Here wood drops to trussed section of conveyor to barker plant. Trussed section and jackladder raise and lower with tides.

2. Here's jackladder general view. Underwater agitators in foreground drive wood onto it. Structure in background is part of a bridge.

3. Looking down to jackladder from point half way up to barker plant. Note lower trussed section of this conveyor, which raises and lowers with tides.

4. A barker outside the barker building, which provides for additional capacity in summer when there is more barking done. Two barkers are inside. This conveyor takes cleaned wood back up to "Merry-Go-Round."

5. An 800-ft. long button type cable conveyor carried overage of barked wood to woodyard stacker, shown in service at left. A return strand underneath this conveyor carries wood back when needed to sorting table and on to the mills.

the operation was observed in action by **PULP & PAPER**. Thus only three, instead of the maximum of four men, were needed to operate the entire plant, counting the man at the central electrical controls at the top center table.

Of course, on the conveyor carrying selected wood for the groundwood and sulfite mill, there is a point ahead of the chipper where the stream of wood is split. Here the clean and unbroomed and better wood is selected for sulfite and the remainder is drawn off by hand hook to another conveyor to the six Waterous grinders. Each of these conveyors is 100 ft. long.

The conveyor from the new barking plant to the kraft mill is also about 100 ft. long, transporting this wood to a new Carthage 10-knife 64-inch chipper.

At the "Merry-Go-Round" again, the overage that is not going to three mills is sheared off the sorting table to a conveyor below which in turn dumps it on an 800-ft. long button-type cable conveyor which carries it to the woodyard stacker and which has a return strand under it for carrying the barked wood from the wood piles back to the "Merry-Go-Round" when it is wanted for production. From the lower strand this wood from the piles drops on to a conveyor which in turn feeds it on to the turntable system. Also unbarked wood which comes to the mill on railroad cars can be dropped on to the lower turntable by this conveyance system and fed to the barkers, without being dumped into the river first.

This part of the present system of pulpwood storing and reclaiming is old and is due for a modernization. Studies are being made with a view to eventual installation of a modernized pulpwood storage and recovery system as revolutionary in its conception as this hauling, sorting and barking installation is.

Turning back to the barkers, a very effective operation below them handles waste bark. This is sliced from the drum vats into cylindrical bark screens supplied by Port Arthur Shipbuilding Co. which takes out the water and dumps the bark on to the conveyor that carries it to bark bins. There it is loaded on to trucks. Bark refuse was being used when our editor visited Bathurst as a fill for a new park area.

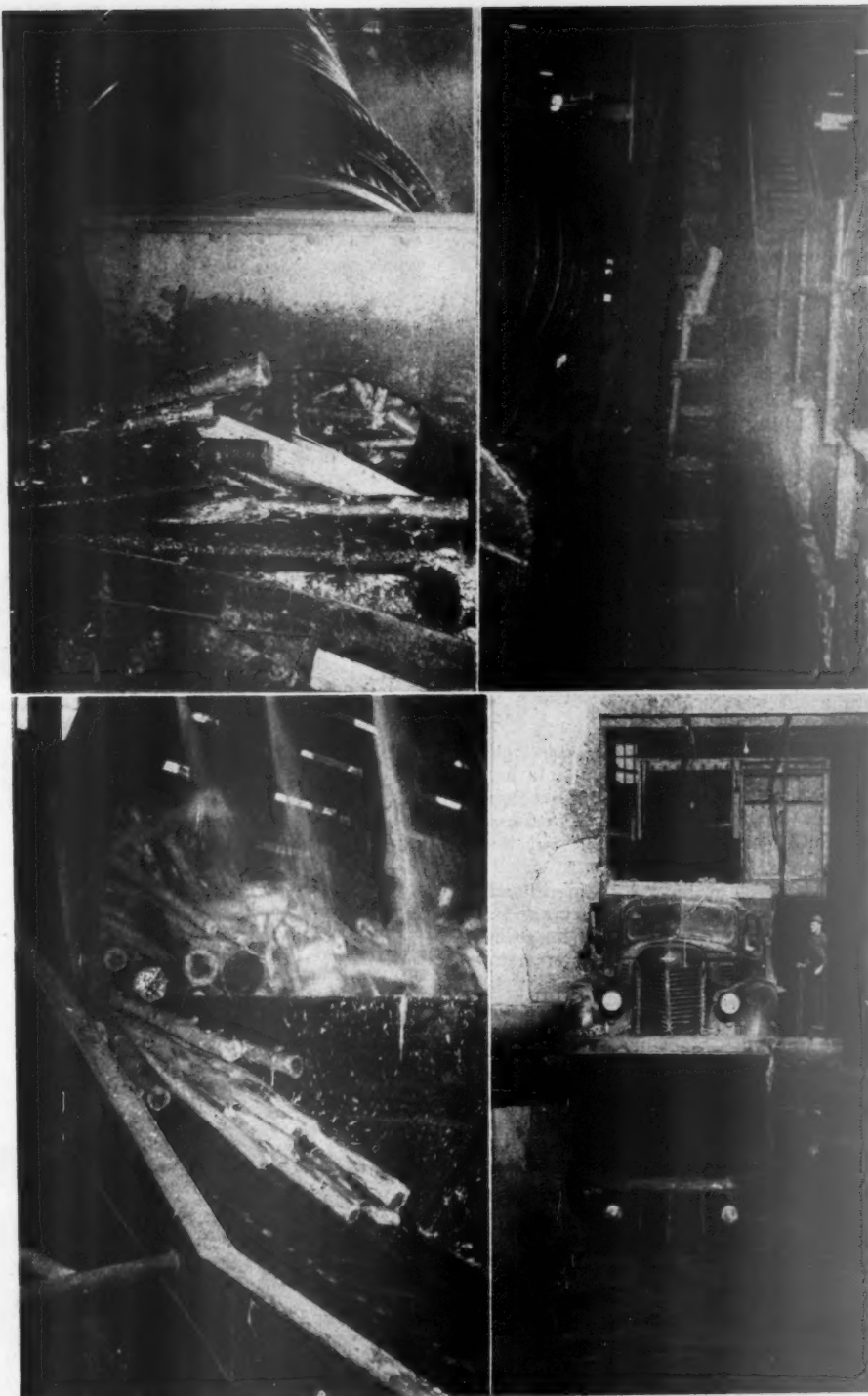
The Bathurst mill arranged all of the electrical devices for the wood handling system we have described.

The Link-Belt Co. supplied chains and drives for all conveyors in the plant. All of the barker plant conveyors are steel with wood troughs.

Dominion Bridge Co. did the steel construction and detail designing work and also supplied drives on the tables—three for the lower or feeding table and two for the upper or sorting table. Power is a comparatively minor item in this set up, as the five motors have a total requirement of only about 25 horsepower

An Attractive Mill Town

Bathurst is an attractive mill town—a resort town in the summer time. The Indian names in this country are some-



VIEW IN NOVEL BARKING PLANT at Bathurst, New Brunswick. Flashlight photos by PULP & PAPER.

Top, left—Wood being sheared into barker, as described in this article.
Lower left—Cleaned wood coming out of barker.

Upper right—Cleaned wood carried by conveyor back to revolving sorting table. Note barker at left of conveyor, which is same one shown in other pictures in this group.

Lower right—At lower level of the "Merry-Go-Round" building, screened bark is being dumped in this truck from bin above.

thing for the book, especially those that have been "Frenchified" in spelling or pronunciation. Names that intrigued our travelling editor were Matapedia, Causapsal and Upsalquitch.

The Bathurst mill has quite a history which goes back to lumber and early power development. Angus McLean, a

pioneer Scotsman and lumberman, was the original founder. The mill is just 52 miles in a southerly direction from the Dalhousie mill of International Paper (correctly pronounced "Dalhoozie" but nobody pronounces it that way). And just 16 miles from Dalhousie is the Restigouche pulp mill at Campbellton, one of the

Fraser group of mills. The new Fraser kraft mill at Newcastle is about 45 miles south of Bathurst.

Our recommendation of the best way to get from mill to mill in this group of four northeastern New Brunswick mills is by hopping the buses, if you haven't a car. Of course, to get into that part of the country the Scotian or other express trains are best, barring a comfortable automobile means of conveyance.

Top Personnel at Mill

Gordon Chalmers, manager of operations at Bathurst, was born at Belledune, just 20 miles from the mill and he has spent 30 years in the Bathurst service, working his way up through the ranks.

John A. Hanna, the mill manager, is a Nova Scotian born near Parsboro, Cumberland County. He attended Acadia University for two years and completed his education at Queens University, Kingston, Ontario, graduating in Chemical Engineering in 1922.

Clyde W. Baggs, the chief engineer, came from Newfoundland. He attended Mount Allison University and graduated from McGill. These two universities have turned out quite a number of prominent men in the pulp and paper industry.

Gordon Allo, now process engineer and formerly control superintendent is a McGill graduate, a native of Montreal, who formerly was with Consolidated of Canada, Abitibi and Price Brothers, in that order.

Percy C. Austin, the kraft superintendent, was born in Bristol, England, and is a Somerset man originally but he seems to have lost most of the "Zummerzet" accent. He has been in service at La Tuque and Dryden kraft mills and was formerly in a sulfite mill in West Hartlepool, England.

E. Harper, the sulfite superintendent, came from "The Island"—which means, of course, wonderfully beautiful and luxurious Prince Edward Island—and he's an old timer in the industry.

Dave Kean, paper mill superintendent, came from Consolidated at Three Rivers.

D. Lago is board mill superintendent and he came from the J. R. Booth mill at Ottawa, now one of the E. B. Eddy mills.

E. C. Bannerman, a Nova Scotian who only recently joined Bathurst, is plant engineer and he is a Mount Allison and Nova Scotia Technical College grad. He came from the steel industry and he much prefers the pulp and paper field.

Another Nova Scotian, G. E. McLellan, is the electrical engineer, and the steam plant engineer is W. S. Hosking, a graduate of Queens.

Youngest of key staff and another newcomer in the ranks is Robert A. Johnston, who succeeds Mr. Allo as control superintendent. He joined Bathurst after serving with Shawinigan Chemicals at Shawinigan Falls, Que., where he was process supervisor of the chemical division. Born in Windsor, Ont., he attended Lawrence Institute of Technology in Massachusetts.

In the 1948 North American Review

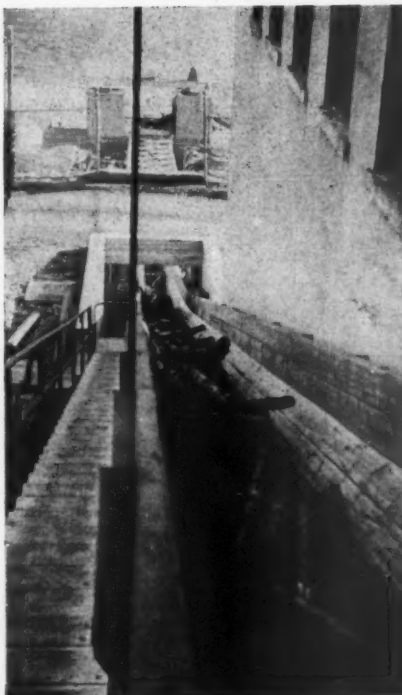


PHOTO AT LEFT is taken where wood enters new type of barker plant at Bathurst, up hillside from jackladder and floating haul-up in Nipisiquit River. Note how conveyor passes under roadway.



AT RIGHT, our flashlight photo, taken on 35 mm. film shows barked wood on smooth dark surface of circular steel revolving sorting table, high up in "Merry-Go-Round" barker plant. Only outer surface of this 36-inch diameter table transports wood. This table is located pyramid-like above a 58-inch diameter feeding table. From this upper sorting table only two men in monitor stations are required to select and send wood down chutes to sulfite and groundwood or to kraft mill.

Number of **PULP & PAPER** (page 56) is a description of an interesting high yield kraft system installed at Bathurst and successfully operating there, which aroused much interest in Southern U. S. and other areas where similar systems are now being considered. It requires cooking of a raw hard pulp, principal units, as described in this magazine, are four digesters with central blow tank, Foxboro

regulators, magnetic separator, Miami No. 6 jordan, three Sutherland refiners in parallel and Swenson-Nyman washers in parallel.

And now, again, in the space of just a couple of years, Bathurst has followed up its interesting kraft high yield system with a wood handling "Merry-Go-Round" that will probably stir up just as much interest and comment in this industry.

WOOD FOR ALBERTA MILL

Herman N. Simpson, vice president of Cellulose Engineers, Inc., of Seattle, recently outlined before the Red Deer, Alberta, Board of Trade the progress which has been made in financing a \$10,000,000 bleached kraft pulp and board mill of 175 tons capacity in that city. First announcement of this project was published in this magazine in the Sept., 1948, issue.

A long term forest utilization program has been approved by an Alberta provincial government council, a necessary preliminary under Alberta regulations. There are no existing pulp mills in the entire province. Red Deer is 100 miles north of Calgary. President of the projected company is Melvin Hough, also president of a lumber company at Rimbey, Alta.

Mr. Simpson said one third of the products in board for food and dairy products would be marketed in Alberta and Manitoba—two thirds, in bleached pulp, in the U. S.

He compared Alberta's forests suitable for the manufacture of pulp as about one-half of that of Ontario where there are some 30 pulp mills.

He estimated that the mill would employ 200 individuals while 500 more would be needed to keep the mill supplied with raw timber. The payroll would be about \$500,000 annually.

Weyerhaeuser Mill Reorganizes Maintenance

The maintenance departments of the Pulp Division, Weyerhaeuser Timber Co., Longview, Wash., has recently been reorganized. According to Donald G. Felthous, plant engineer, promotions included the following: George W. Wolfe, from master mechanic to mechanical advisor; L. L. Anderson, assistant master mechanic promoted to master mechanic; and C. V. McIntyre, formerly head pipe fitter, became assistant master mechanic. Carl Fahay continues as chief electrician, with Rex Swanson as his assistant.

HOW BAIE COMEAU SET RECORD VISIT TO QUEBEC MILL

At Baie Comeau, way out near the mouth of the St. Lawrence, fly fishermen are guaranteed a good catch in well-stocked lakes; hunters are assured good partridge shooting—and any mill which challenges Baie Comeau's world's speed records for newsprint production is positively guaranteed a real battle.

There's no railroad to Baie Comeau, and it's the eastern end on a very rough road along the upper shore of the St. Lawrence. But in good weather there's a tri-weekly plane from Quebec and Montreal and a little Anson fighter, which saw war service over London, hops back and forth across the broad river from Rimouski.

To see how the "champion" was reacting to the currently much-discussed friendly "race" between the shiny new Powell River and Bowater's Newfoundland news' machines for a new world's speed record, **PULP & PAPER'S** editor flew into Baie Comeau by one of these routes and out the other, in a pilot seat.

From what was observed during that visit, you can just bet your bottom dollar that no one in Baie Comeau, from Divisional Mill Manager G. J. "Jim" Lane down the line, is going to give up their championship lying down.

The Quebec North Shore Paper Co., at Baie Comeau, now 12 years old, is still the most modern complete paper mill in Canada. It is a beautifully constructed brick and concrete mill, the inside en-

COL. ROBERT R. McCORMICK (left), Publisher of the Chicago Tribune, which built Thorold, Ont., and Baie Comeau, Que., mills, and CAPT. ARTHUR A. SCHMON, President and General Manager of the two newsprint companies. Col. McCormick and Capt. Schmon were fellow-officers in U. S. artillery in France in World War I.



tirely tiled, designed by Jules Jaeger, then the company's chief engineer, now retired, and his assistant, now his successor, M. H. "Bert" Jones, with the consulting assistance of the late John Stadler, who came from Austria to design several of Canada's modern mills. When the 1943 forest fire raced six miles from the airport to the very edge of town, it was planned to move part of the population into the mill, if necessary, relying on safety behind its fire doors, which are all through the plant. The warehouse, where

newsprint must be stored during the December-to-April freeze, is constructed of corrugated asbestos and steel.

From April to December, ships sail down the coast to deliver newsprint to the New York Daily and Sunday News, whose circulations are the greatset of any newspaper in the western hemisphere (daily, 2,400,000; Sunday, 4,700,000). Some of the paper occasionally goes to the jointly-owned Chicago Tribune. But that's only to improve the overall trim of the Baie Comeau machines and those of the parent company's mill at Thorold, Ont., which has been producing steadily since 1913 for the Chicago paper.

World's Newsprint Speed Records

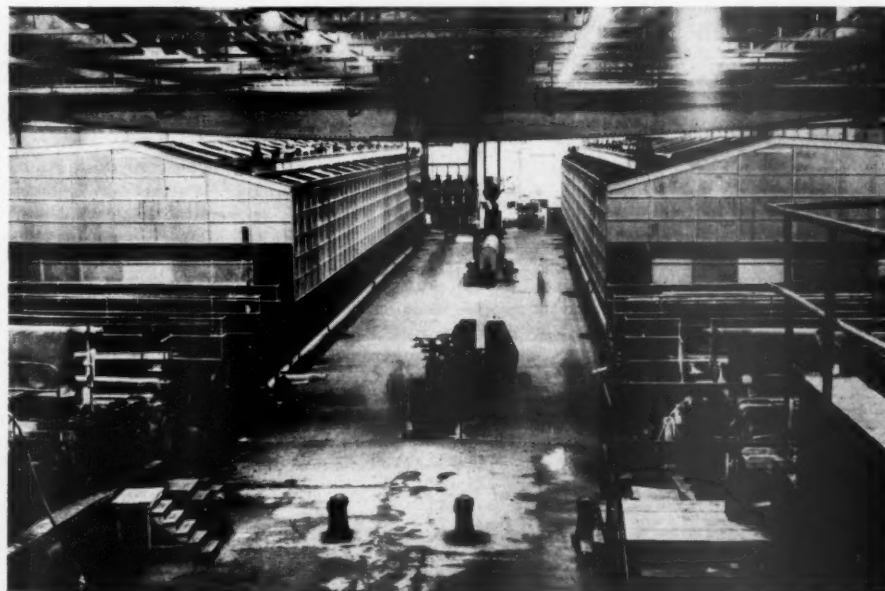
During **PULP & PAPER'S** recent Baie Comeau visit, its twin 262-inch wire (244-inch trim) machines were rolling off news at the phenomenal speed of 1,660 feet per minute. Their best speed has been 1,730 f.p.m. and their best month-long average has been 1,650 f.p.m.

"We expect to get more speed," they say at Baie Comeau and as far as they are concerned it is no two-way "race" between Powell River Co.'s new 226-inch No. 8 and Bowater's Newfoundland Mills' new 284-inch No. 6 for the world record. For a while, at least, it's going to be a three-way race.

In the long pull, the machines at Corner Brook and at Powell River will have to be conceded an edge because they are mechanically constructed for greater speed. But there are always wrinkles to iron out with new machines and it may be months—many months—before they can hope to surpass Baie Comeau.

Operating skill and experience also count in building up speed on paper machines. Incidentally, the experience of

QUEBEC NORTH SHORE PAPER CO. MACHINES at Baie Comeau, made by Dominion Engineering Co., Ltd., which still holds world's speed records on newsprint, although new machines at Powell River and Bowater's Newfoundland mills are slowly being worked up to challenging speeds. These are 262-inch wire (244-inch trim) machines rolling off news at 1,660 ft. and better per minute. Their best speed to date has been 1,730 f.p.m.





LORNE C. ANDERSON, Manager of Manufacturing for both the Baie Comeau, Que., and Thorold, Ont., mills. He makes headquarters at Thorold.

former Baie Comeau men like Resident Manager Russ Cooper at Powell River and General Supt. Andrew Killin and Machine Supt. Don Lochyer at Corner Brook are also in their favor.

The average 485 tons a day of newsprint now produced at Baie Comeau is only part of the requirements of the New York Daily and Sunday News. Another 275 tons a day are purchased from Canadian International or other mills.

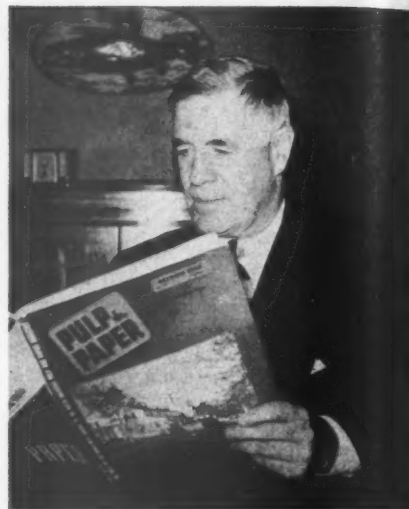
Baie Comeau makes newsprint with about 20% sulfite and 80% groundwood

and it is now producing an average of 61 tons of groundwood and 60 tons of sulfite pulp over the requirements of its machines, which are sold to mills in the U. S.

Over the years a number of changes have been made, mechanically, in the equipment and operation of the Baie Comeau machines. It might surprise some papermakers in other segments of this industry to know that the mechanical additions, devices or alterations made at Baie Comeau, and still being made for greater speed, were freely and openly discussed and shown to **PULP & PAPER**. That, in itself, is a testimonial that, for all the physical changes which may be made on a machine, it is the operation "know-how" that counts in the end in getting production.

In every newsprint mill visited in Canada such information was freely given. But it is almost a religion at the Baie Comeau and Thorold mills to share with the industry in exchange of technical information.

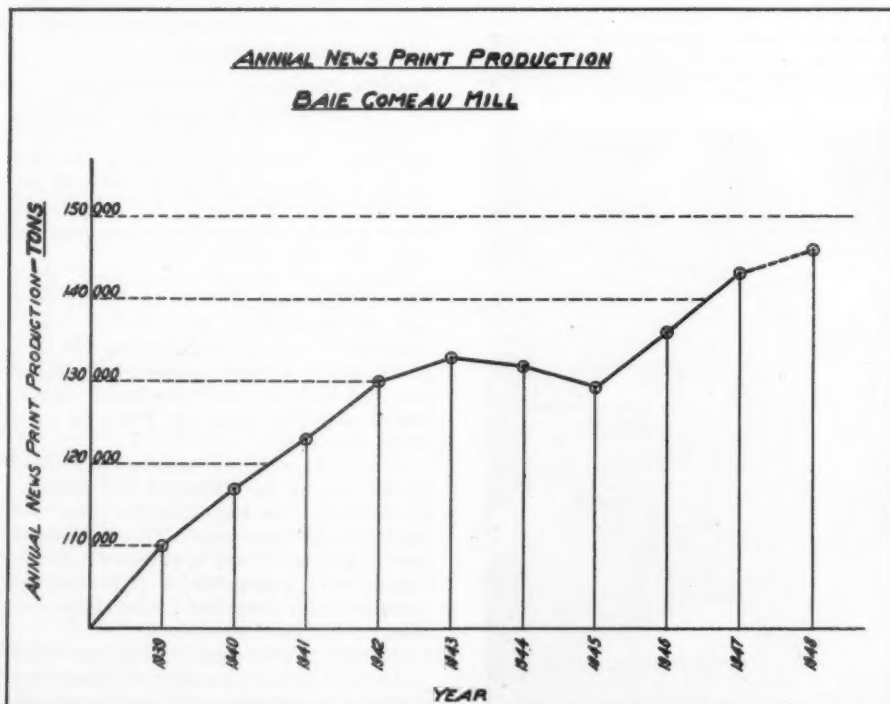
The policy of exchanging technical information was instituted by Capt. Arthur



GEORGE JAMES (Jim) LANE, Division Mgr. of Quebec North Shore Co., Baie Comeau, Que., since that fastest news mill in world was built. An engineering alum of U. of Illinois, he was engineer and manager at several International mills from Bastrop, La., to Pyrites, N. Y., and Gatineau, Que., during an illustrious career in this industry. This photo taken by **PULP & PAPER**.



SOME OF KEY MEN AT BAIE COMEAU (left to right): **WALTER W. HOLLAND**, General Supt.; **JACOB BODTKER**, Plant Engineer; **GARDNER C. BOONE**, Paper Mill Supt.; **PERCY NEIL**, Sulfite and Wood Handling Supt.



Schmon (pronounced "Shmone," the "o" as in "bone") who is now president and general manager of The Ontario Paper and Quebec North Shore companies. Capt. Schmon is an old friend and served as a fellow-officer of Col. R. R. McCormick, publisher of the Chicago Tribune, in the 1st U. S. Artillery in World War I in France. Col. McCormick who pioneered and founded the two mills in Canada—he holds titles of vice-president and treasurer in both companies—has always favoured this policy of exchanging technical information, long before many other paper company executives.

Excellent Housekeeping

One of the most impressive things one notices at the Baie Comeau mill is the wonderfully excellent "housekeeping." In every department, cleanliness is noticeable. Every week, a big white elephant goes to the department with the poorest showing, and that is usually just an overlooked corner. Safety men patrolling the mill report on cleanliness at a weekly meeting.

Does good housekeeping have anything to do with speed? Walter W. Holland, the 40-year old general superintendent thinks so. "It helps the morale of employees and it is a factor in good operation," he says, "and after that—and because of that—it is a factor in speed-up."

Equipment Changes and Additions

Ahead of these "champion" machines are 12 Bird screens supplied by Canadian Ingersoll-Rand Co., six on each. One on each was recently installed to step up capacity.

Each machine now has 125 inches of head on Van der Carr slices with curved lips. They have their original multi-pass headboxes, only the heights being in-



Roll surfaces that stay clean and shining have a lot to do with paper uniformity and finish. They mean fewer rejects and breaks. They permit maximum operating speed, save steam at the dryers, increase wire life and roll life and reduce maintenance expense.

Vickery Doctors keep each and every roll clean and in top shape to do its best work. Each Vickery Doctor is carefully laid out and engineered for each individual roll application.

VICKERY DOCTORS
Engineered for
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BIRD MACHINE COMPANY

South Walpole, Massachusetts

creased—three times since 1937. They have perforated distribution rolls.

Right after the slice and the main forming board, two small 8-inch forming boards have been added. There is an ordinary break roll. At this point where the sheet is formed it was found that these additions helped the speed, giving support to the sheet.

We saw one of the steepest pitches on any wire—a 40-inch pitch on 44 ft. The wire is 100 ft. long. This, of course, is a common practice to attain speed, but Norway-born Jacob Bodtker, the plant engineer, is of the opinion that it really doesn't make so much difference and they probably could get as much speed with a flat wire.

One 35-inch dandy roll providing less pick-up and better break-up of lumps, is on one machine and because it seems to help speed-up, one is ordered for the other.

The couch has a double suction box and pressure rolls are used to harden up the sheet and help speed. Two suction presses are on each machine.

Double-unit H-12 Nash vacuum pumps have been added to each machine and one Ingersoll-Rand pump has been added to the original pair on each machine. Each machine has a Cramm drainage system.

The machines were originally designed for three presses, but only two presses are being used. In order to avoid a sag to the dryers where the third press would be, a vertical felt-stretching device has been installed to give support to the sheet.

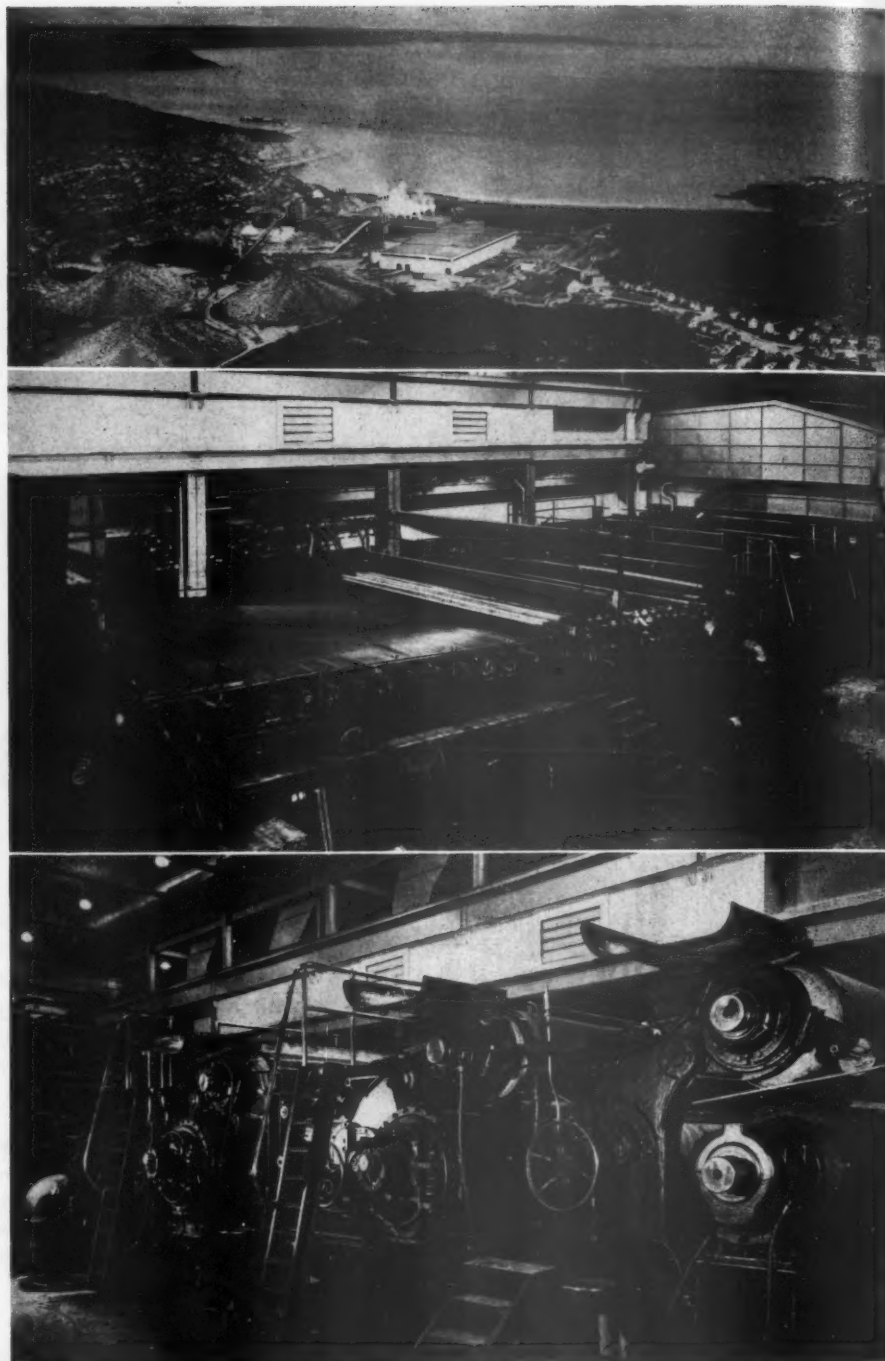
There are 48 dryers on each machine with Ross Engineering hoods and Grewin systems for ventilation of the dryers. These were, of course, "tailor-made" for the machines.

A Bird Vickery felt conditioner on No. 2 machine is in experimental use. Likewise, Bird Dirtex on No. 1 are being used experimentally before being added to No. 2. Vickery doctors are on the bottom roll of calender stacks on each machine.

Both of the paper machines were built by Dominion Engineering and that company also supplied two 247-inch rewinders. These were adequate until the speed-up steadily achieved on the machine made it necessary two years ago to add a 247-inch Cameron Machine Co. rewinder, so now there are three simultaneously operated to keep up with production on the two paper machines.

The Harland type paper machine drive developed by the company of that name in Alloa, Scotland, serves these machines, but it is not electronic—it is electrically controlled between sections instead. Bepco of Montreal supplied this equipment and designed for potential stepping up of speed to 2,000 ft. per minute, with booster units which have been recently added. Various changes have been made in the orthodox belt and cone system. One additional generator has been installed, now serving as a spare.

In contrast to the new newsprint machines installed last fall potentially designed for speeds up to 2,000 ft., the machines at Baie Comeau were actually



BAIE COMEAU MILL AND MACHINES

Top—Air view of Quebec North Shore Paper Co., Ltd., mill at Baie Comeau, Que., facing the St. Lawrence River in background. Boat can be seen loading newsprint at upper left. At upper right on the shore is company's pleasant resort hotel where fishing friends of Colonel McCormick, owner of Chicago Tribune, have stayed and others including a PULP & PAPER editor on this assignment. Airplane is only practical means of reaching Baie Comeau, as there is no railroad and only a very rough highway.

Center—General view of wet end of one of Dominion Engineering Co. machines which is setting newsprint speed records at Baie Comeau, showing head box and Fourdrinier section.

Bottom—Front side of press section on the high-speed Dominion machine.

designed for slightly less than they are now operating, according to their operators. The Baie Comeau men had no where to go for information or to see examples of how to get the speeds they have attained. They taught themselves how to run at higher speeds and their own improvements in technique account for their success.

Other Mill Equipment

Wood preparation, sulfite mill and groundwood mill at Baie Comeau have generally standard equipment. Four standard drum barkers are ahead of the 88-inch 4-knife Waterous chipper supplied the sulfite mill and the 16 high magazine type Waterous grinders. The

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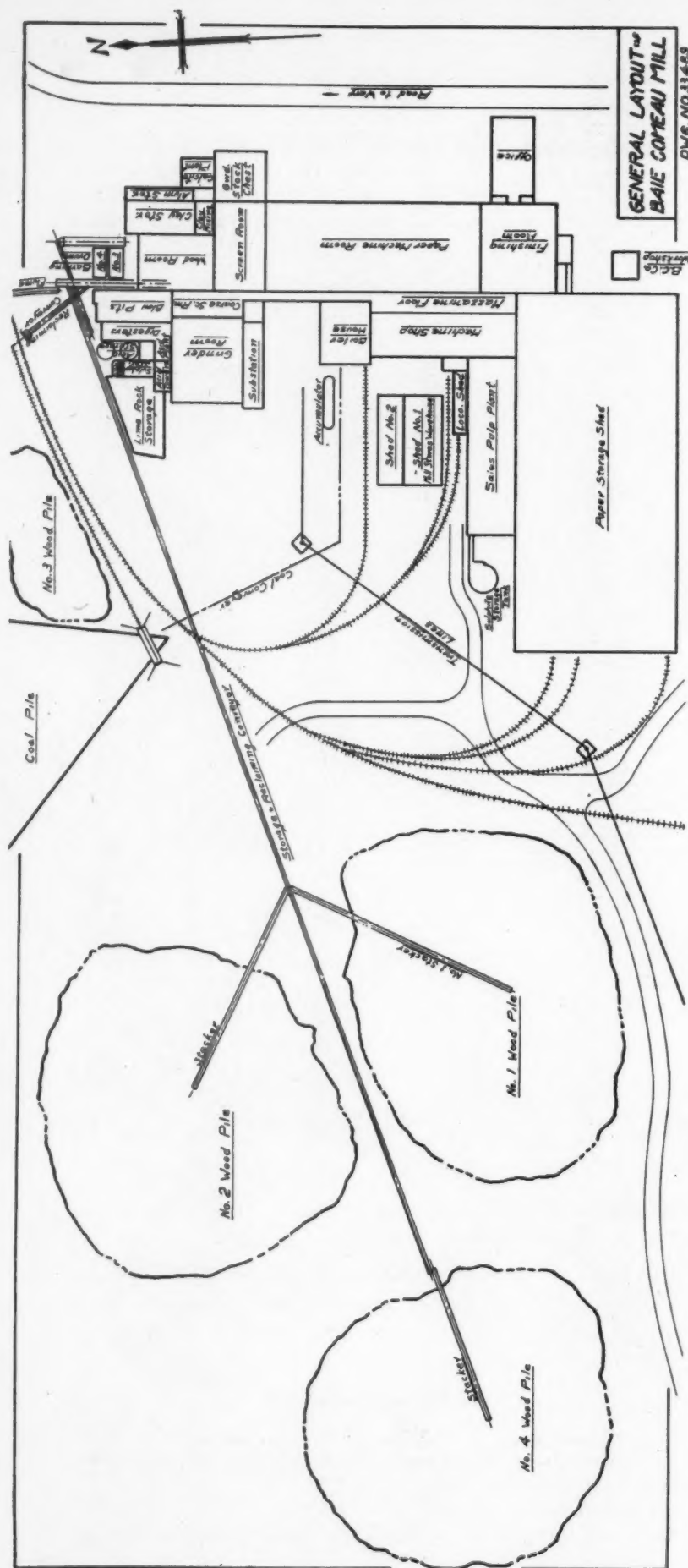
DISTRIBUTORS OF WOOD PULP

BLEACHED AND UNBLEACHED
CHEMICAL AND MECHANICAL WOOD PULP



Paul Bunyan's toughest logging job was on Pyramid Forty—one hundred million feet of lumber on a forty-acre tract. By straining his keen eyesight, Paul could see the top in a week. But it took all of seven days for Paul's septet of axemen, working together, to do the same thing.

A reproduction of this incident from the fabulous life of Paul Bunyan—the forty-second of a series—will be sent on request. It will contain no advertising.



grinders are in two lines, each pair driven by a 3,600 hp. GE motor. They are 18 ft. high.

Two additional digesters have been added to the original two, doubling sulfite capacity. Canadian Steggins Mfg. and Eng. Co., Ltd., supplied ceramic linings in all digesters, stainless steel is used in fittings and piping and the stainless throughout the mill was supplied by Shawinigan Chemicals Co.'s Stainless Steel Division at Shawinigan Falls, Que., or by Welland Electric Co. in Welland, Ont. Conventional manual controls are in the digester plant. Two new 8 ft. Jenssen towers have been added to the two original 6 ft. towers and a Jenssen acid plant was provided.

Wood Production and Handling

Wood supply for Baie Comeau is about 85% spruce, the remainder balsam fir. The trees reach 6 or 7 inches in diameter and they are not very tall in this northern climate. It takes them 100 years to reach that size. In the woods they are cut to 4-ft. lengths because the streams for driving are small and also because of the 26 miles of flumes which are used to bring in wood.

At the mill is a 267-ft. jackladder, one of the highest in eastern Canada.

The gravity-flow flumes are interesting and quite unusual in some respects. They are more extensively used than in most operations and at one point a flume carrying wood to the mill crosses a river on a 350 ft. suspension bridge. At some places overland the flumes are as high as 40 ft. off the ground. The average drop throughout the 26-mile system is 3 ft. to every thousand feet.

Instead of the old style two-legged support with cross beam, these flumes are supported on single center posts made of British Columbia Douglas fir and treated with creosote for "20-year life." Guy wires support them from the sides and the posts are held in a creosote-treated metal container buried in the ground. The single-post was adopted to reduce rot potential and because of the heights of the flumes.

The entire layout of flumes from the two logging districts up the English River and Outardes River deliver 110 cords an hour on an average.

From 10 to 16 cords an acre of wood are produced, mostly by old style Quebec methods but some mechanization experimenting has started at one of the camps. They are cutting about 40 miles up the English River and 15 to 45 miles up the Outardes, in both areas in rather rough country.

Normally the population in Baie Comeau is 3,500. But another 3,500 wood choppers come into the area during the winter logging season. There is a very excellent community center offering all kinds of recreation, including ice skating in the winter. A notable job has been done in teaching hobbies or avocations of all kinds to residents who might otherwise find time somewhat heavy on their hands at certain seasons of the year. As we've indicated at the beginning of this article, fishing and hunting in season are rated

Camas: specialties—tissue and wrapping



One of the world's largest specialty paper mills is the Camas Division of Crown Zellerbach Corporation, at Camas, Washington. Here are made over 200 different kinds of specialty paper, with more than 1,000 color and weight specifications. Of the mill's fourteen machines, two are post-war Beloit, and the rest embody Beloit equipment. Most recent Beloit machines are an "all-purpose" Fourdrinier and a Yankee High Speed Fourdrinier, added as part of a complete modernization program.—*Beloit Iron Works, Beloit, Wisconsin.*



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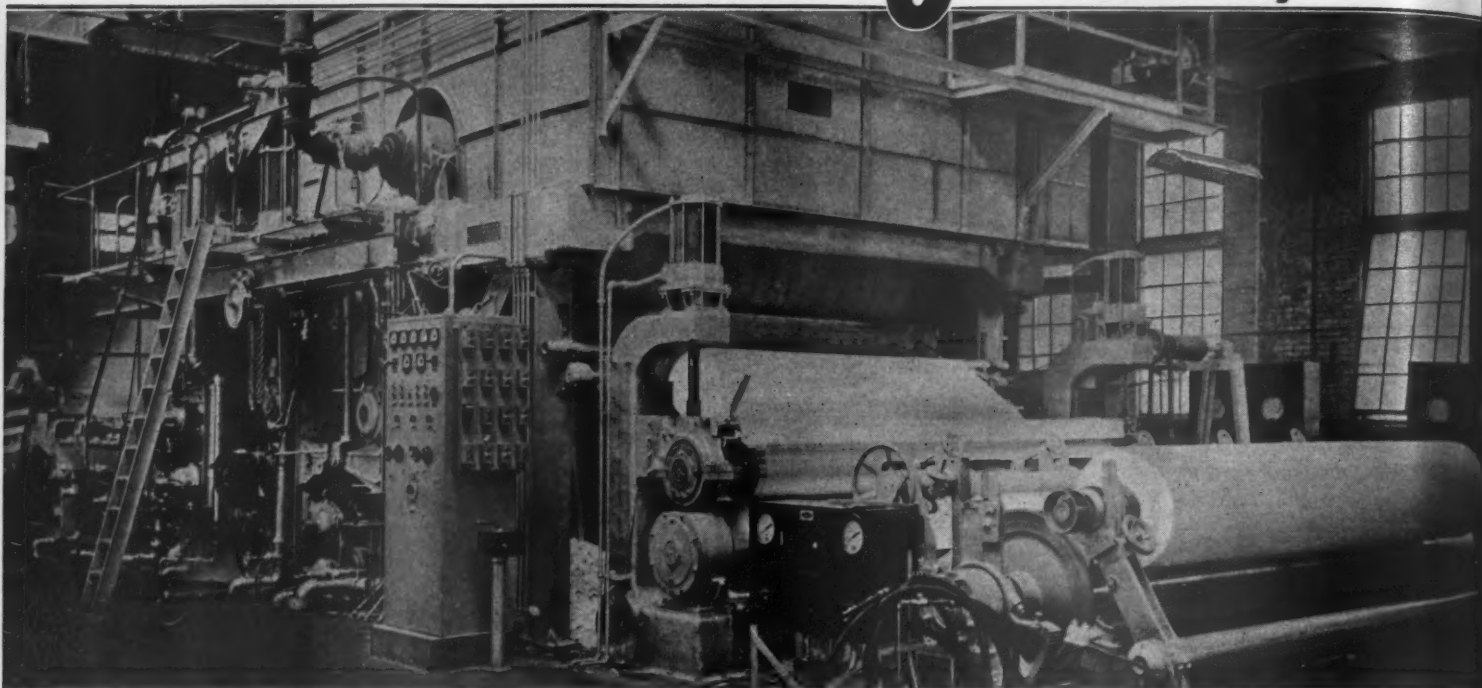
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154" Pusey Jones Fourdrinier Facial Tissue Machine at Groveton Papers Company, Groveton, New Hampshire. A duplicate of this machine installed at Rushmore Paper Mills, Inc., Natural Dam, New York.

GROVETON and RUSHMORE Build for the Future

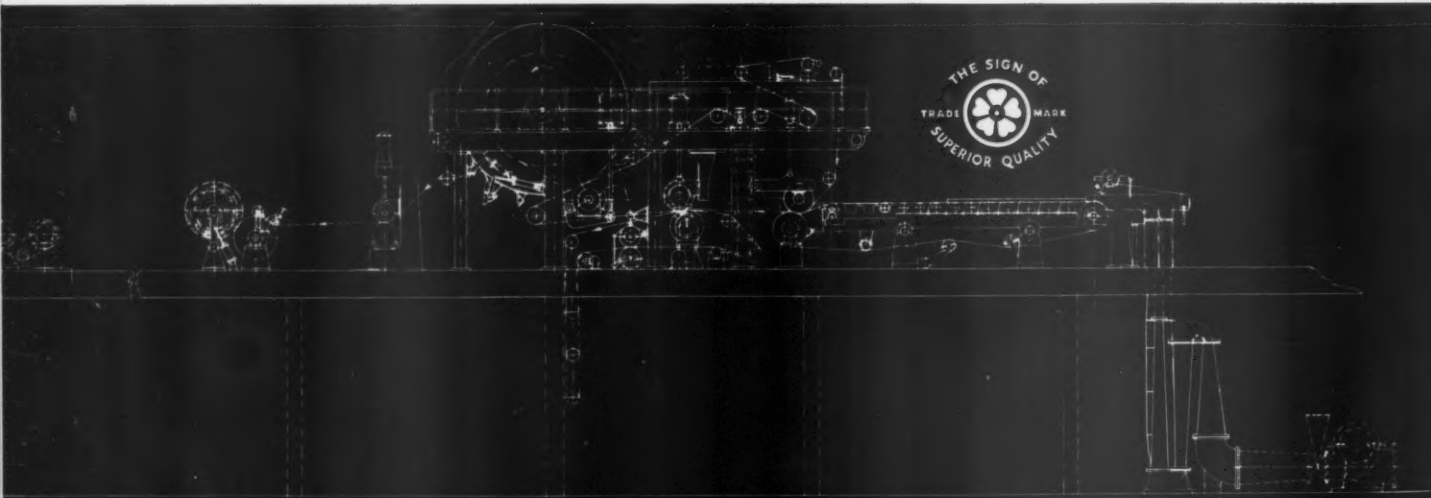
Here is the latest Fourdrinier Facial Tissue Machine now in operation at Groveton Papers Company and Rushmore Paper Mills, Inc. Designed for maximum speed of 1500 F. P. M. Among the outstanding features are:

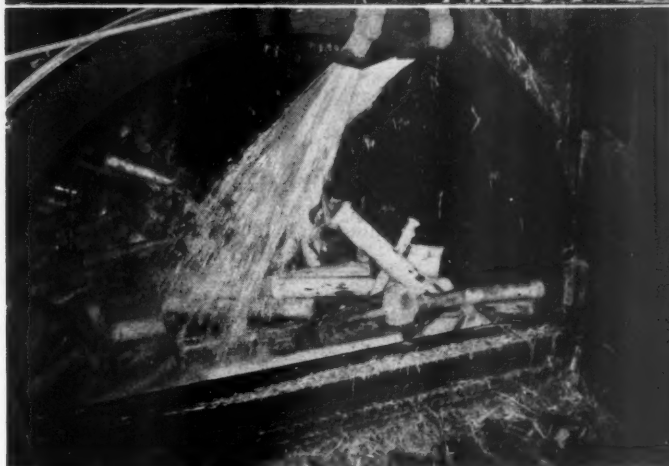
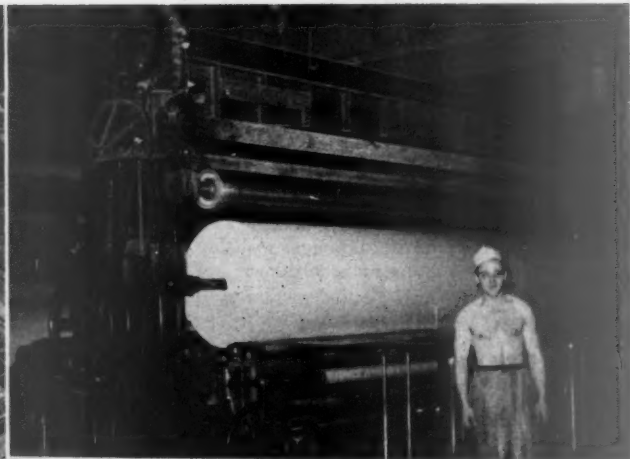
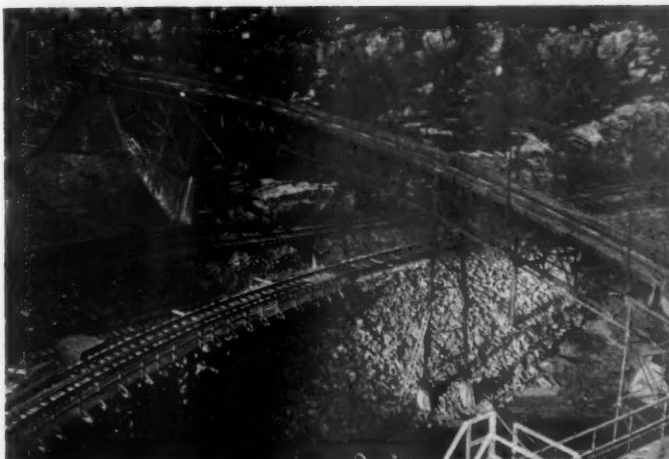
- (1) Flow Spreader with new closed pressure slice;
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VIEWS OF BAIE COMEAU. Two pictures at left, part of the unusual 26-mile system of gravity flow wood flumes which bring wood to the Baie Comeau mill. These sections are near the mill.

At right top—Winder end of one of the twin speed record holding machines. At right below—Drum barker.

tendent, has been at Baie Comeau from the start-up, formerly as control superintendent. Before that he was at Thorold and was educated in the States.

Jacob Bodtker, plant engineer, graduated from Oslo Technical College in Norway, and was at Lake St. John before joining Quebec North Shore five years ago.

Robert Keating, who has been at the mill since the start-up, is the control superintendent; Morley Pope is electrical superintendent; James Bayliff is steam plant superintendent; and N. N. Smith is mechanical superintendent. Serving under Mr. Neil, John Beaupre is general foreman of woods handling, and Walter Stewart is assistant sulfite superintendent.

Purchasing agent is H. I. Nelson and W. E. Collison is traffic manager.

H. A. Sewell is the general woodlands manager for both the Ontario and Quebec mills. T. B. Fraser is woodlands manager of the Eastern Division of the Quebec Co. and Gordon Godwin is assistant general woodlands manager of the Ontario Co. E. E. Ferguson is woodlands manager at Baie Comeau.

RECORD PRODUCTIONS					
	N° 1 MACHINE		N° 2 MACHINE		BOTH MACHINES
	DATE	PRODUCTION	DATE	PRODUCTION	DATE PRODUCTION
DAILY TONS	SEPT. 18-48	261.14	JUNE 12 1948	256.00	AUGUST 13 48 508.7
WEEKLY AVR. TONS WEEK ENDING	JUNE 12 1948	247.97	JUNE 12 1948	246.24	JUN-12 1948 494.21
MONTHLY AVR. TONS	SEPT. 1948	243.59	SEPT. 1948	239.01	SEPT. 1948 482.60
START UP TONS	SEPT. 20-48	250.46	AUG. 9 1948	241.83	SEPT. 7 1948 490.23

THIS PICTURE SHOWS RECORDS BLACKBOARD on the world's two fastest new machines which were set in 1948 at the Quebec North Shore Paper Co. This blackboard is in machine room between the two machines. Note columns at left show records for the combined machines in late 1948. Already new records have been set as shown in table below.

Best Records for Fastest Newsprint Machines in the World—2-262 In. Wire, 244 In. Trim Machines at Baie Comeau.

Both Machines	Tons
Best day—Jan. 26, 1949.....	520.81
Best Monthly Average—Jan. 1949....	484.07
Best Start-up Day—Nov. 15, 1948....	500.01

No. 1 Machine	Tons
Best Day—Jan. 20, 1949.....	263.38
Best Monthly Average—Nov. 1948....	248.26
Best Start-up Day—Jan. 10, 1949....	259.53

No. 2 Machine	Tons
Best Day—Jan. 26, 1949.....	257.72
Best Monthly Av.—June, 1948.....	246.24
Best Start-up Day—Nov. 15, 1948....	247.22

PUGET PULP MAN IS WINNER

Shibley Contest Held in Longview

Oldest of all the sections of the American industry's technical association staged a meeting which drew in attendance one of biggest youthful audiences for any pulp and paper meeting on record last month.

It was the Pacific Coast section, which despite the fact that it is the oldest of all sections, has established quite a reputation for coming up with young and original ideas. It did it again at Longview, Wash., April 8, where a crowd of nearly 200, made up mostly of young mill men or young men from seven colleges and universities of the Far West, heard:

1. All papers entered in the annual Shibley award contest, delivered at one sitting for the first time. This contest is for young mill men in Coast mills. Four papers were delivered and the winner was 25-year-old Vance L. Reynolds, chemical engineer at Puget Sound Pulp & Timber Co., who discussed separation of dirt from unbleached sulfite pulp by Bird Machine Co. Dirtacs and Nichols-Freeman Vortraps. He found them about equal in dirt-removing ability, each removing in the order of 30% of specks and 10% of shives. Installations can be so arranged that losses of good fiber are at a minimum, he said.

2. Dr. Erik Hagglund, noted professor of wood and cellulose chemistry at the Royal Institute of Technology and also more recently with the Swedish Forest Products Research Laboratory, who gave for the only time in America a comprehensive and unique paper entitled: "A Study of Chemistry of the Sulfate Process."

In this issue on the following pages are Dr. Hagglund's article and also summaries of the four Shibley papers. Mr. Reynolds will deliver his paper again at the national technical convention in Portland, Ore., Sept. 11-15, and it will be published in full in **PULP & PAPER** after that meeting.

About 40 of those at Longview were college and university men who have indicated an interest in entering the pulp and paper industry as lifetime careers. This is the second successive year in which

Two other Executive Committeemen (l to r.): BEN NATWICK, of Pumpkin Center, near Camas, Wash., Pacific rep. of Appleton Wire Works, and OTTO SANGDER, Chief Chemist, Grays Harbor Div., Rayonier Incorporated, Hoquiam, Wash.



WALTER F. HOLZER (left), new Chairman of Pacific Coast Technical Section. He is chief of Fibrous Raw Materials section of Crown Z's Central Technical and Research Department in Camas, Wash. ROBERT M. TRUE (right), General Dyestuff Corp., Portland, Ore., was re-elected Secretary-Treasurer.



ROBERT I. THIEME (left), new Vice Chairman of Coast Section, who in that capacity heads up programs. He is Tech. Director, Soundview Pulp Co., Everett, Wash. ERIC O. ERICSSON, elected Executive Committeeman. He is Tech. Director, Puget Sound Pulp & Timber Co., Bellingham, Wash.

the mill group on the Coast have entertained these college men from six or seven institutions at technical meetings, along with mill visits and fellowship of a dinner. It's an idea that might prove attractive to this industry in other regions of the U. S. and Canada.

On this page are photos of the new officers of the Coast group. Harold Wall of Longview Fibre Co. concluded his term as chairman.

We also publish with this article photos of the Shibley contestants.

The winner, young Mr. Reynolds, is a native son of Bellingham, Wash., where he works. He is married. He attended Washington State College and graduated from the University of Kansas in chemical engineering. He served as ensign in the Navy in the war before returning to Bellingham to join Puget Sound Pulp & Timber Co., in 1946.

Shibley papers were judged on orig-

inality of approach, organization, quality of writing and presentation. The award is named in honor of the late "Cap" Shibley, Seattle chemical engineer who took a great interest in encouraging meeting activities of young mill men.

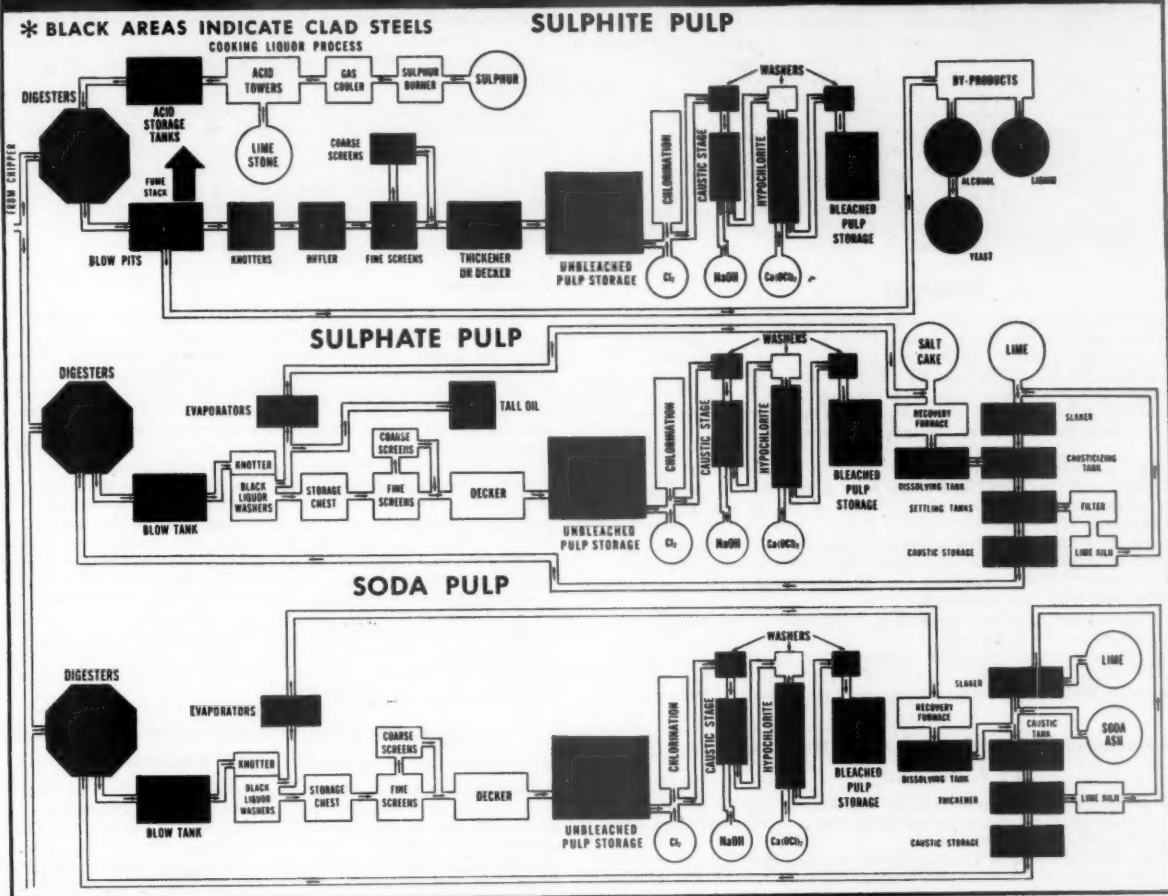
Judges of the 1949 contest were: Howard Graham, assistant to the technical director, Central Technical and Research Dept., Crown Zellerbach Corp., Camas, Wash.; Robert M. True, Northwest representative for General Dyestuff Corp., Portland, Ore.; Irwin Thieme, technical director, Soundview Pulp Co., Everett, Wash.; Dr. Joseph McCarthy, chemistry and chemical engineering department, University of Washington, Seattle, and Otto H. Sangder, chief chemist, Rayonier Inc., Hoquiam, Wash. Mr. Graham was chairman. Their decision was unanimous.

Here follows summaries of the four papers which were entered and presented in Longview:

1949 SHIBLEY PRIZE contestants who gave papers at Longview, Wash., April 8 (l. to r.): ROBERT S. TOWNE, Asst. Engineer, Fibreboard Products, Port Angeles; J. A. DYKSTRA, Asst. Chemist, Publishers Paper Co., Oregon City; VANCE L. REYNOLDS (winner), Chemical Engineer, Puget Sound Pulp & Timber Co., Bellingham, and EVERETT J. REICHMAN, Asst. Director of Research, Fibreboard Div., Simpson Logging Co., Shelton.



Applications for *Clad Steels** in Paper-Pulp Making



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countered trouble with corrosion.

The new Bulletin 470, "Product and Equipment Protection for the Pulp and Paper Industry", is just off the press. For a copy and for help on your corrosion problems, write Lukens Steel Company, 444 Lukens Building, Coatesville, Pennsylvania.



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CONDENSATIONS OF SHIBLEY CONTEST PAPERS —

"The Separation of Dirt from Unbleached Pulp by Centrifugal Type Classifiers," by Vance L. Reynolds.

ABSTRACT

The possibilities of removing dirt from unbleached sulfite pulp by use of the DIRTEC, manufactured by the Bird Machine Co., and of the VORTRAP, manufactured by Nichols-Freeman, were investigated. Results of tests to determine dirt removal efficiency are presented together with the effects of operating variables on classifier efficiency and capacity.

The Nichols-Freeman VORTRAP and the Bird DIRTEC are well known equipment that have been used for years to remove dirt from stock in paper mills, where installations have been reported as being very efficient. (1) (2) (3) The classifiers, however, have not found as wide spread use in the pulp industry, although the manufacturers have suggested that they can be used with advantage for removing dirt during the process of manufacturing wood pulp. To the best of our knowledge Stevenson (4) has made the only reported investigation of this possibility. He found that the VORTRAP compares favorably with riffles for removing dirt from bleached pulp, but obtained a very low efficiency when unbleached stock was treated under the same conditions. It was therefore the purpose of this investigation to study more thoroughly the possibilities of utilizing this type of equipment to remove dirt from unbleached pulp. The work falls logically into two parts, first evaluating a method for measuring the efficiency of the equipment and second, testing the equipment to measure its efficiency under different conditions of operation.

SUMMARY

It is realized that the results of this work, obtained with unbleached sulfite pulp at the plant of the Puget Sound Pulp & Timber Co., may differ from results obtained at other mills where the conditions of operation are not the same. Also, it should be pointed out that this was not intended to be an exhaustive study of centrifugal dirt separation. With these reservations in mind, however, there is every reason to believe that the results set forth are indicative of the results to be expected in other similar installations.

In summary the findings were:

1. The DIRTEC and the VORTRAP have been found to remove dirt and shives from unbleached sulfite pulp in the order of 30% of the specks and 10% of the shives.
2. Experimentation indicated that a high positive bleed is necessary, and that the sumps as settling chambers are ineffectual with unbleached stock.
3. An installation of these classifiers can be so arranged that losses of acceptable fiber are held to a minimum.
4. There is no apparent change in DIRTEC efficiency when capacity is increased by enlarging the inlet nozzle.
5. Although it was not the purpose of this paper to critically compare the VORTRAP with the DIRTEC, results of tests made on both of the classifiers indicate that they are about equal in dirt removing ability.

"Furnish Measurement Problems of a Fast Newsprint Machine," by J. A. Dykstra

This paper involves the determination of the ratio of sulfite to groundwood on a fast newsprint machine, bringing up the problems involved and shows our method of coping with them.

Prior to 1945, our mill figured the furnish of a paper machine by multiplying the total weight of the unfinished paper by a factor of 107.5 which was assumed to account for unmeasured losses. In 1945, rather extensive tests were conducted to determine just what the total furnish figure was. One problem that interfered with accurate measurement was the fact that the sulfite furnished to the machine contained white water fines. To determine the ratio of the fines to sulfite, a series of freenesses were run on known mixtures of the two and a curve drawn on which the per cent sulfite of a spot Trimby sample could be determined by running a freeness.

The procedure for checking the furnish was to feed lapped sulfite to the machine previously weighed and sampled for moisture. Consistency and freeness tests on the groundwood and sulfite were determined each hour as well as machine speed, all white water losses and a moisture test on the dry paper. This procedure gives the actual pounds of sulfite furnished to the machine and is the basis for checking the accuracy of the proportioning equipment.

The sulfite passing through the Trimby is calculated from the Trimby meter reading using the freeness connection curve and multiplied by a factor supplied with the Trimby plus a correction constant. The difference then, is the groundwood and broke passing through the groundwood side of the meter.

The correction constant in the calculation has been established from this method of checking the furnish and amounts to about 10%. The leaks in the Trimby account for about 4% of this and the error in the method of freeness determination of fines in the sulfite about 6%. Multiple checks have shown the errors to be constant enough to justify the inclusion of the correction factor in the formula for calculating total furnish.

Conclusion

The accuracy of the total furnish method of calculating the ratio of sulfite to groundwood using a correction factor established by experiment, is within the error of the various measurements.

It has been suggested that a better method than freeness be used for de-

termining the white water fines in the sulfite. Several different methods were tried, but none proved as quick or any more accurate than the freeness. A fractionation is slow and subject to fluctuating errors. One method tried, was to run a permanganate number on the mixture and determine the percentage sulfite from a curve plotted on known mixtures of fines and sulfite. The permanganate number of one gram of solids from the effluent from the filter is 409 cc. and on one gram of sulfite it is about 13. With this extreme range in which to work, it was hoped to find a curve that would give the per cent sulfite more accurately than the freeness method, but even using the same sulfite and the same source of fines, the curve did not correspond to the known percentages.

There are possibilities, however, in a chemical determination because of the difference in nature between the groundwood and the cooked sulfite, but because of limited time, the problem is left for future investigation.

"Attaining Optimum Boiler Operation," by Robert S. Towne

Economical operation of the boilers in any plant is obtainable only when the various factors necessary for the generation of steam are properly measured and controlled. Proper combustion of the fuel in the boilers is mainly dependent on the correct air-fuel ratio in the furnace. To a lesser extent the temperature and pressure of the oil and the pressure of the steam to atomize the oil also effect the combustion efficiency of the burners. For maximum operational economy, automatic control of these variables eliminates the inaccuracy and variation in results accompanying manual operation.

Conclusion

Many factors with varying degrees of importance must be considered before a boiler installation can be operated with a maximum of efficiency. When oil is used as a fuel, its temperature and pressure determine to some extent the efficiency with which it can be burned in a given installation. When this oil is atomized with steam, the pressure of the steam also has a bearing on the end result. Only enough steam should be used to properly atomize the oil so that complete combustion will occur. Although steam in greater quantities, up to a certain point, is not detrimental to the burning of the oil it is not necessary and is only being wasted.

Most important of the controllable variables is the air-fuel ratio in the combustion chamber. Maximum economy can be obtained at each load setting of the boiler only when the draft is set for complete combustion with a minimum of excess air. The best method for determining this point is to take a flue gas analysis with an orsat as the draft is increased and the fuel flow remains constant. The draft at which the CO₂ reading is a maximum is the proper setting for that rate of fuel feed.

Calibrating an air-flow pen to the correct draft for various boiler loads enables the operator to maintain the proper air-fuel ratio in the furnace by adjustment of the dampers. For highly variable steam loads automatic boiler controls insure a proper air-fuel ratio no matter at what per cent of rating the boiler is operating.

"Evaluating Pulp for Softboard Manufacture," by Everett J. Reichman

Shortly after our company (Simpson Logging Co.) had decided that insulating board was a potential product for the utilization of our sawmill slabs and edgings, work in commercial laboratories was started in order to evaluate the process. Results from these laboratories indicate that the process was feasible so full size pulping equipment was obtained and a laboratory was equipped to evaluate more of the variables of the process.

A literature survey indicated that there was no standard method for the evaluation of pulps for softboard manufacture and one of the first problems confronting the laboratory was a standard method of evaluation.

Realizing that the drainage rate of pulp would be a critical factor on a board machine, the freeness test was chosen as a control test. A fiber classifier was used to augment the freeness test and give a more precise evaluation of the pulp and as a final criterion of board-making qualities, a method of making test boards was developed. The staff felt that if a test sample could be made which could closely resemble the finished product, the method by which it was made closely resembled the manufacturing process, the test results should apply to full scale production. Mill results have shown this to be true to a point and the test method which was developed and tested in the lab has been invaluable not only in the development state of the mill, but in answering many problems which could not be solved in actual production.

Although this method has only been used on mechanical pulps made from wood logged commercially in the Pacific Northwest, it is felt that it would be suitable for evaluation of other pulps being used for softboard manufacture.

Fundamentally, the method is to make six test boards, each one-half inch thick when dried. The pulp samples are weighed out so that the six boards range in weight from 0.55 to 0.8 lbs. per square foot. The test boards are sawed into strips for flexure and tensile strength measurements, which are plotted on graphs as functions of the board weight. This gives a plot which can be called the strength characteristic curve of the pulp.

The personal element and limitations of laboratory equipment make it necessary to assume that softboard is a homogeneous material which reacts according to the flexure formula. Sample boards are rarely exactly one-half inch thick when dried, hence the flexure formula is used to calculate what the breaking load would be for the same board if it were one-half inch thick. The results have shown this assumption to be valid within the limits of experimental error.

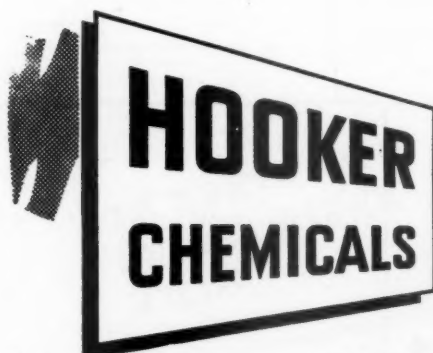


Liquid Chlorine Versus Bleaching Powder

Although bleaching powder was in regular use by pulp and paper makers for many years, it carried with it time consuming and costly difficulties. Bleaching powder was never stable in storage and when made into bleach liquor, it was difficult to get clear solutions and to eliminate sludge.

When liquid chlorine became readily and cheaply available, the old bleach powder methods could be discarded. Under the stimulus of production for World War I, electrolytic cell design improved, chlorine production increased and economical methods of liquifying and transporting were developed. Hooker engineers and chemists played an important part in this progress. They also helped specifically in the pulp and paper industry not only in improving bleaching techniques but in the designing of bleaching equipment.

Hooker technicians are constantly engaged in making available for you the high purity liquid chlorine and other Hooker chemicals you use. The results of their studies, too, are available in Hooker Technical Bulletins and cover a wide range of subjects of interest to pulp and paper makers. A list of the titles of these bulletins and copies of those you would like to have will be sent to you when requested on your letterhead.



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Chlorine

May, 1949

49

A STUDY OF THE CHEMISTRY OF THE SULFATE PROCESS

By Dr. Erik Hagglund

Professor of Wood and Cellulose Chemistry, Royal Institute of Technology, Stockholm, Sweden.

(This address given for the only time on the North American continent, during his recent coast-to-coast tour, at the dinner of the Pacific Coast technical section in Longview, Wash., on April 8.)

DR. ERIK HAGGLUND (left), of Stockholm, whose unique paper is published on this page. DR. WILHELM HANS GIERTZ (right), of the Swedish Forest Products Research Laboratory, who accompanied Dr. Hagglund on his coast-to-coast tour of America.



The question of the part played by sodium sulfide in the sulfate cooking process has been a subject of research for many years, and has had many interpretations. In the beginning the most preposterous explanations were advanced. For example, it was believed that the sulfide was oxidized to sulfate by oxygen obtained from organic compounds found in the wood or in the liquor. The favorable effect that sulfate cooking apparently had on the quality of the pulp led Klason, in his time, to assume that the sodium sulfide gradually hydrolyzed into sodium hydroxide and sodium hydrosulfide during the course of the cooking, and that in this manner the alkali effect on the cellulose would be less. This is, as was pointed out long ago, in incorrect since, under actual sulfate cooking conditions, the sodium sulfide is practically completely hydrolyzed already at the beginning.

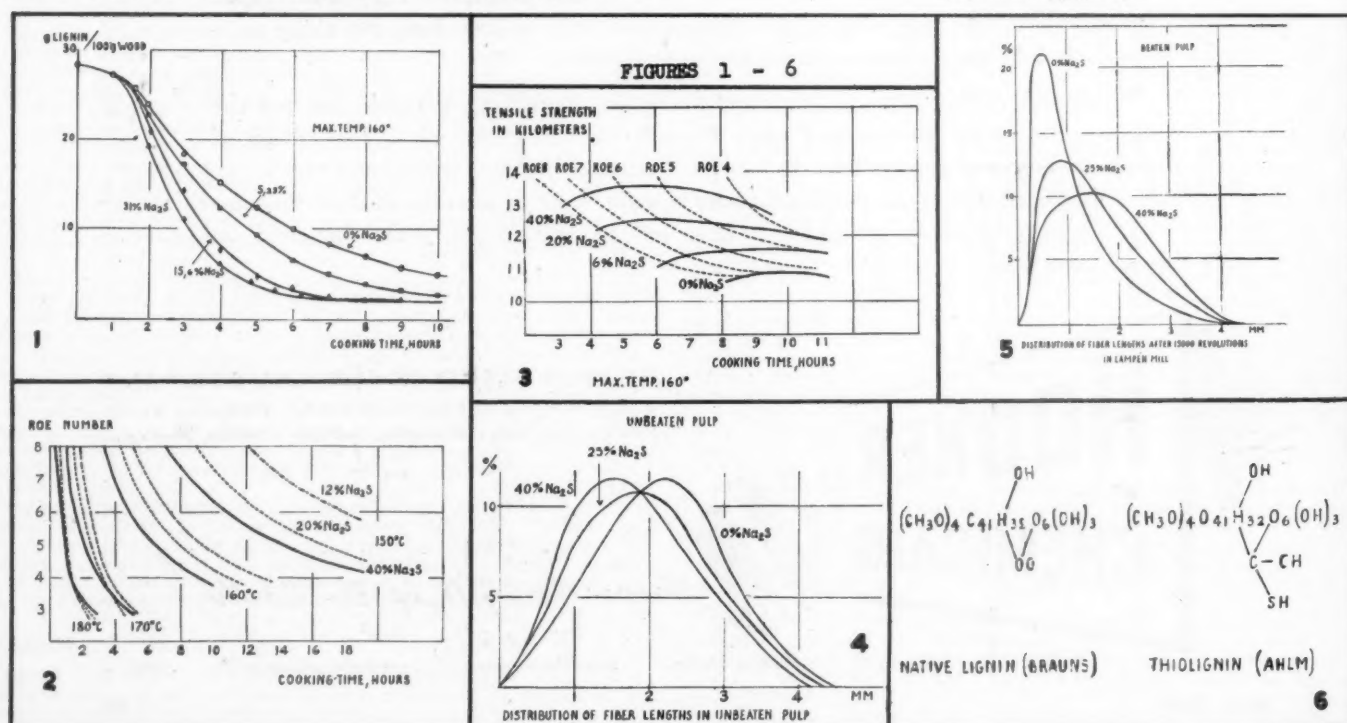
Klason's observations that the lignin in "black liquor" contained sulfur was an important development. He did not, however, draw any conclusions from this, regarding the reaction mechanism. Later Kullgren theorized that solid lignin took up sulfur and thus became more soluble in alkali.

For an illustration of the difference in the speed of dissolution from a pure alkali cook and a sulfite cook using white liquor of different sulfide contents, I refer you to Fig. 1 from an investigation carried out by Hedlund and myself. The cooking took place at 160°C and the alkali ratio, that is the amount of active alkali expressed as sodium hydroxide in percent of dry wood, was 24.2. The rate of dissolution of lignin increases with increased sulfide content, but it is evident that the last residue of lignin in the pulp dissolves very slowly. As a consequence, the cooking-time of pulp with the same degree of delignification (Roe-Number) can be considerably reduced by increasing the sulfide content of the white liquor. This is illustrated in Fig. 2, which also shows the results of runs at different maximum temperatures. In order to obtain a Roetal 5, one must, for example, at 160°C, cook only 6½ hours with 40% sulfidity in contrast to 9½ hours with 12% sulfidity. It follows from this, that the pulp is exposed to the effect of the alkali for a shorter time, the greater the sulfidity is.

How this effects the pulp's properties is shown in Fig. 3, which shows the "tensile strength" after cooking at a maximum temp. of 160°C. It is obvious that the strength is decreased by decreasing the sulfidity. It has been a popular belief among cellulose technologists, that this fact should manifest itself in a breaking apart of the pulp fibers during the cook. If one conducts a microscope determination of the distribution of fiber lengths in pulp, cooked with white liquor of different sulfidity, no such difference could be found. If such a difference should exist it would be exactly the opposite Fig. 4. If different pulps are subjected to beating, characteristic differences can be observed, as is shown in Fig. 5. After 15,000 revolutions in a Lampenmill, pulp cooked with 40% sulfidity was characterized, only to a very small degree, by broken fibers. The increase in the beating degree in this case was mostly due to fibrillation. Cooking with pure alkali gave, on the other hand, an obviously brittle pulp, which fell apart with beating into short pieces of fibers.

I shall now return to the question of why thio-lignin, in the solid state, dissolves earlier than a non-sulfur containing lignin. Investigation in this plan was begun by myself 25 years ago in research conducted together with Trygg. This was later followed by work at the Royal Institute of Technology and, still later, at the Swedish Forest Products Research Laboratory in Stockholm. As colleagues, I had had, in chronological order,

(Continued on page 72)

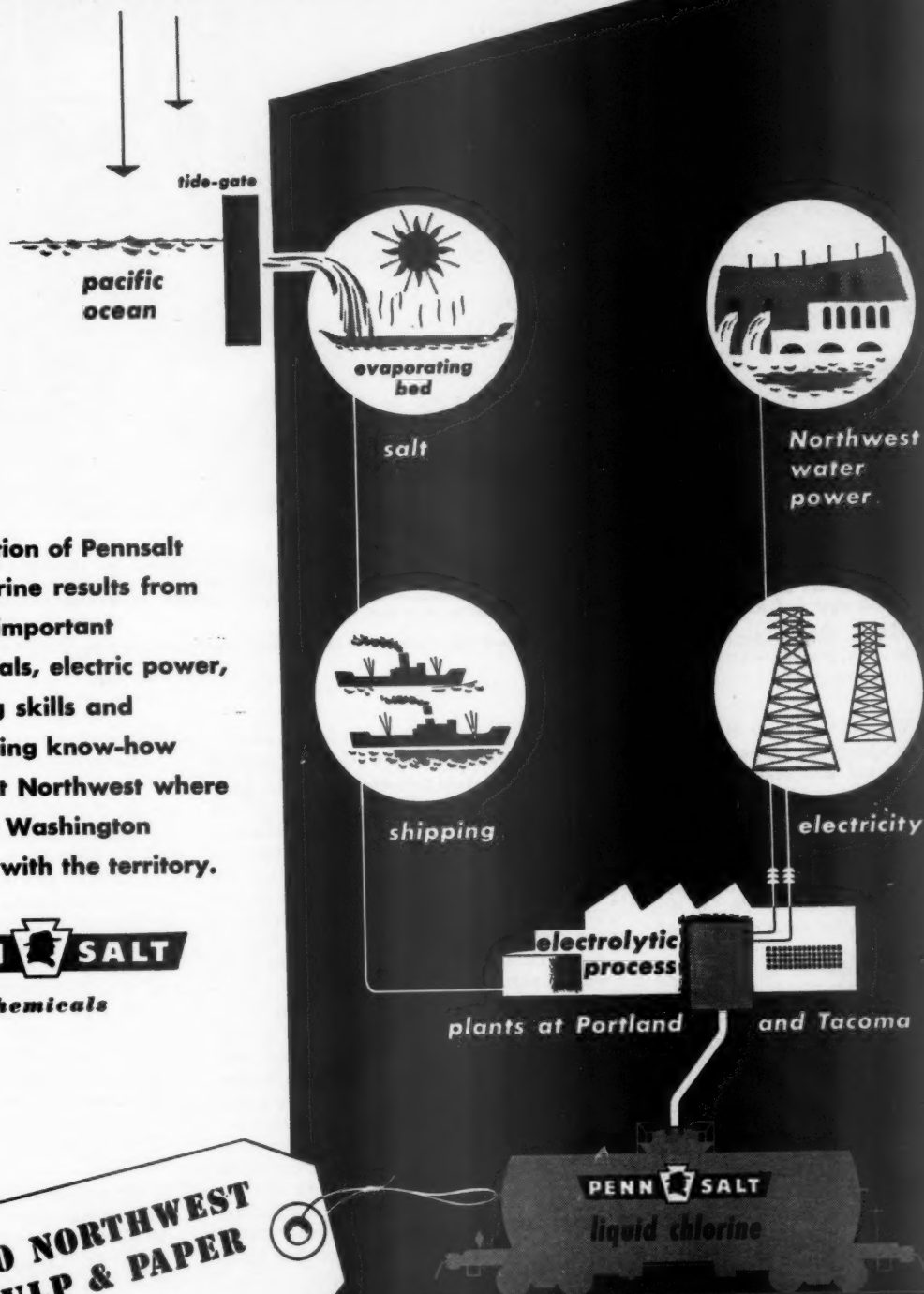


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DIPLOMAS FOR 167 AT CAMAS

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AT CAMAS PAPER SCHOOL GRADUATION

FRANK N. YOUNGMAN (center, standing), Vice President of Crown Zellerbach Corp., presents diploma to VERNON COX, fourth-year student at Crown Willamette Paper School graduation ceremonies in Camas, Wash. Standing at left is A. G. NATWICK, Assistant Resident Manager of the Camas mill and Dean of the Paper School. Seated in foreground: FRANK A. DRUMB, left, Resident Manager of the Camas mill and, right, P. T. SINCLAIR, Resident Manager of C-Z mill at West Linn, Ore.

ERNEST G. SWIGERT (far left), President of Hyster Co. and Vice President of Electric Steel Foundry Co., Portland, Ore., delivering principal address at graduation exercises.

Crown Willamette Paper School at Camas, Wash., widely acclaimed as one of the most unusual educational institutions in the American industry, held its 16th annual graduation exercises March 10, with 167 students receiving diplomas for satisfactorily completing work in their respective classes—21 diplomas for finishing the full four year course, 26 for the third-year course, 54 for second year, and 66 for first year.

The paper school, started in Oct., 1933, has awarded 2,160 diplomas to students of all classes. During the first few years of the school all students were employes of the Crown Willamette Paper Co., division of Crown Zellerbach at Camas. Later many students from other divisions of C-Z attended. This year's enrollment, the highest since 1941-42 of 245 students, was made up of employes from the Camas and West Linn C-Z mills, Portland office, Pacific Coast Supply Co., Zellerbach Paper Co. and Western Waxed Paper Co.

This school, studied by various industries throughout the world, has been conducted on such high standards that the University of Washington and Oregon State College accept its credits on college level.

Frank A. Drumb, a regent of the paper school and resident manager of Crown Zellerbach Corp. mill at Camas, in his welcoming remarks said the organization's industrial school provides employes the

opportunity to obtain the type of education directly applicable to their profession.

In the principal address, Ernest G. Swigert, president of Hyster Company and vice president of Electric Steel Foundry Co., Portland, Ore., discussed "Responsibility of Management to the Public." He pointed out that top management is not primarily paid for intensive knowledge of the industry concerned, but for leadership. Without leadership this country must surely slip.

Mr. Swigert raised the question, "Are this nation's accomplishments due to our natural resources or to the American way of life." Answering this he said, "Our accomplishments can be traced to this nation's basic freedom—working for ourselves and family we have achieved a state of living never before reached." Most of history's tragedies, according to Mr. Swigert, were caused by well-meaning people. No planned economy will work, he said, because it overlooks the basic principles by which we carry on.

Diplomas were presented by Frank N. Youngman, vice president of Crown Zellerbach, who discussed changing times and conditions, mentioning that the honeymoon of unfilled-order business is over in industry in general, including paper. Reviewing the large capital investment made by CZ and other mills in the paper

industry, he said, "now we have to get returns from the outlay or it is a bad investment."

W. D. Welsh, executive assistant in San Francisco headquarters, was toastmaster. A. G. Natwick, assistant resident manager at Camas, and dean of the paper school, presented awards to honor students.

Donald J. Tenney of the Portland office, and Andrew C. Catto, Camas, first and second place honor students, respectively, of the fourth-year class, were given a week's expense-paid trip to visit Northwest mills. Other honor awards: Howard Z. Rondeau, Camas, first in third year, received a 3-volume set of "Pulp & Paper Manufacture," and F. L. Curtis, Western Waxed Paper Co., second, received George S. Witham, Jr.'s "Modern Pulp & Paper Making."

Violet Boettcher, Camas, first in second year, was awarded "Paper Making Through 18 Centuries" by Dard Hunter; and Robert H. Olds, Camas, second, received Mr. Witham's book. Chester A. MacNeill, Jr., Portland, and Robert F. Ditewig, Portland, first and second in first year, received the same awards, respectively, as the second-year winners.

Honorable mention awards consisting of one-year subscriptions to **PULP & PAPER** were received by the following: First year, Donald F. Holden, Jr., Floyd W. Blanchard

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*The Wall Street Journal,
February 21, 1949*

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PAPER SCHOOL'S FOURTH YEAR CLASS

Front row (left to right)—Robert A. Allen, John L. Buchholz, Earl Bush, Charles H. Butler, Wade Byers, Andrew C. Catto, Vernon E. Cox, Julius A. Gould.

Center row, Dennis A. Holland, Bernard J. Jacoby, Raymond W. Janz, Don Larios, Albert O. Muench, Joseph J. Neidermeyer, Charles L. Nordstrom, Donald M. Platt.

Rear row, Walt L. Rich, Jim Rook, Thomas J. Shurm, Don J. Tenney, Ross L. Trieman.



THIRD YEAR CLASS OF PAPER SCHOOL

Front row (l. to r.), Clinton E. Ash, Jr., William Ashe, Clarence Curtis Asher, Kenneth Byington, Frank E. Caskey, Leslie J. Champion Jr., F. L. Curtis, Harold Daniels, Frank L. Detemple.

Center row, Thomas F. Drennan, Donald C. Eldredge, Jerry J. Goggins, Leonard R. Greger, Thomas W. Hart, Patrick Heade, William H. Kraft, Tom W. Leadham, Jr., Dean E. Lindgren.

Rear row, Conrad Morasch, A. L. Morris, Sidney Pierce, Howard Z. Rondeau, H. A. Sandstrom, Thomas B. Scarfone, Gilbert W. Winslow. Mathew Haslett is missing from photograph.

and Jane E. West; second year, John J. Donovan, Fred L. Schmidt, Marjorie V. Wagner; third year, Thomas F. Drennan, Leonard R. Greger; fourth year, Dennis A. Holland and Charles H. Butler.

The school faculty includes Dean Natwick; C. A. Anderson, Camas wood technologist, the registrar; W. C. Jacoby, technical supervisor at Camas, and principal and professor of second year class; C. A. Enghouse, assistant to resident manager at West Linn, vice principal; Lee Maybach, Camas, senior engineer, professor of first year class; R. A. Butler, assistant technical supervisor, assistant first year professor; Harold L. Roley, order department, assistant registrar; Miles Cady, foreman field engineers, assistant second year professor; Reginald Haight, personnel department, professor in third year; C. T. Beals, technical assistant to the kraft mill supervisor, professor of fourth year; George Bailey, paper machine designing engineer, assistant fourth year professor. Faculty advisors are Paul V. Millard, assistant to supervisor of product quality and development; Gus Ostenson, manager of paper production; and F. R. Sievers, superintendent of groundwood mill, all of Camas;

and E. H. Nunn, technical supervisor of West Linn mill. Regents are J. E. Hanny, vice president in charge of all operations, San Francisco, Mr. Drumb and C. E. Bruner, consultant for all C-Z mills.

See page 56 for pictures of first and second year classes and names.



Crown Zellerbach Holds California Award Dinners

California service pin dinners were held recently in Los Angeles and San Francisco by Crown Zellerbach Corp.

Louis Bloch, chairman of the board, received the only emblem ever awarded by the company for 55 years service, at the San Francisco banquet, which also honored 35 other employees. This was the first and last 55-year award since the company has inaugurated a retirement program.

D. J. Galen, secretary of Crown Zellerbach Corp., received a 40-year pin. He worked in San Francisco for Crown Columbia Corp., predecessor corporation, when it had only nine employees.

A. R. Heron, vice president, and chairman of the meeting also presented Mr. Bloch a plaque.

Two 25-year pins went to Paul H. Anderson and Lucille Shook; and 20-year pins to A. L. Bennett, Margaret Kassab, Ruth MacKenzie, Alicia Malone, Edward P. Partland, H. O. Nichols, and F. A. Olmsted.

The dinner at Los Angeles honored Frank J. Orth, head pressman, for his 50th anniversary with the organization. Mr. Bloch made presentations to Mr. Orth and 19 others.

Lester E. Remmers, Los Angeles manager was official host; Jack Thompson, personnel manager was in charge of arrangements, while William D. Welsh, executive assistant, San Francisco, was master of ceremonies. Arthur W. Ponsford, Southern California, editor **PULP & PAPER** was a speaker for the 5th consecutive year.

THESE WERE 20-year to 40-year pin winners at 21st Crown Zellerbach pin dinner in San Francisco recently (left to right):

Top Row—H. O. NICHOLS, 20 years; F. A. OLMSTEAD, 20 years; P. H. ANDERSON, 25 years.

Bottom Row—RUTH MacKENZIE, 20 years; D. J. GALEN, 40 years; ALICIA MALONE, 20 years.



LESTER E. REMMERS (right), Los Angeles Manager, Crown Willamette Paper Co., offers hearty congratulations to FRANK J. ORTH (left), Head Pressman, for completing 50 years with the C-Z organization. A diamond pin was awarded Orth at the annual service pin dinner in Los Angeles.

Important points to know about COTTRELL Electrical Precipitators

A COTTRELL Electrical Precipitator is a major plant investment. Once installed it is operated over a period of many years, thus multiplying year after year the benefits of top notch design and installation.

And because of the many factors affecting the operating and collecting efficiency of a COTTRELL Precipitator, probably in no other field do the experience and "know-how" of the organization designing and installing the unit play a more important role in influencing the overall performance of the installation. That is why it is so important to remember this fact . . .

Western Precipitation Corporation is the organization that installed the first successful COTTRELL Pre-

cipitator over 39 years ago, still operating efficiently . . . and has consistently developed new refinements, new techniques, new applications that today have made it world famous in the science of recovering dusts, fly ash, mists, fogs and other suspensions from gases.

This is the first of a series of advertisements briefly outlining the important elements that go to make up a COTTRELL installation. Only long experience coupled with highest engineering ability, can assure the proper combination of these elements into a COTTRELL installation best suited to your particular requirements!

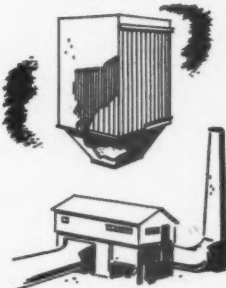
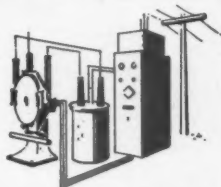
Basically, a Cottrell Precipitator consists of three major divisions each in turn consisting of many separate elements . . .

1. THE ENERGIZING SYSTEM, as its name implies, is the portion of the unit wherein the power is brought in, the voltage stepped up, then rectified to provide the unidirectional high voltage current supply for the Electrode System.

2. THE ELECTRODE SYSTEM consists of the high-tension ionizing electrodes and collecting electrodes through which the suspension-laden gas is passed to be cleaned. These electrodes can be of various designs, shapes and patterns and are equipped with various "rapper" arrangements which assist in keeping the electrodes clean of recovered materials.

3. THE HOUSING OR SHELL includes the structure containing the Electrode and Energizing Systems as well as the gas ducts and distributing system, the hoppers for receiving the collected material and other miscellaneous equipment.

Each of these three major divisions, together with their many individual parts, must be carefully engineered into ONE integrated and precisely-balanced unit to provide the successful and continuously-operating COTTRELL Precipitator. This series will take these major units apart to show in greater detail how the individual parts function and the varying types of design and construction. Watch for them.



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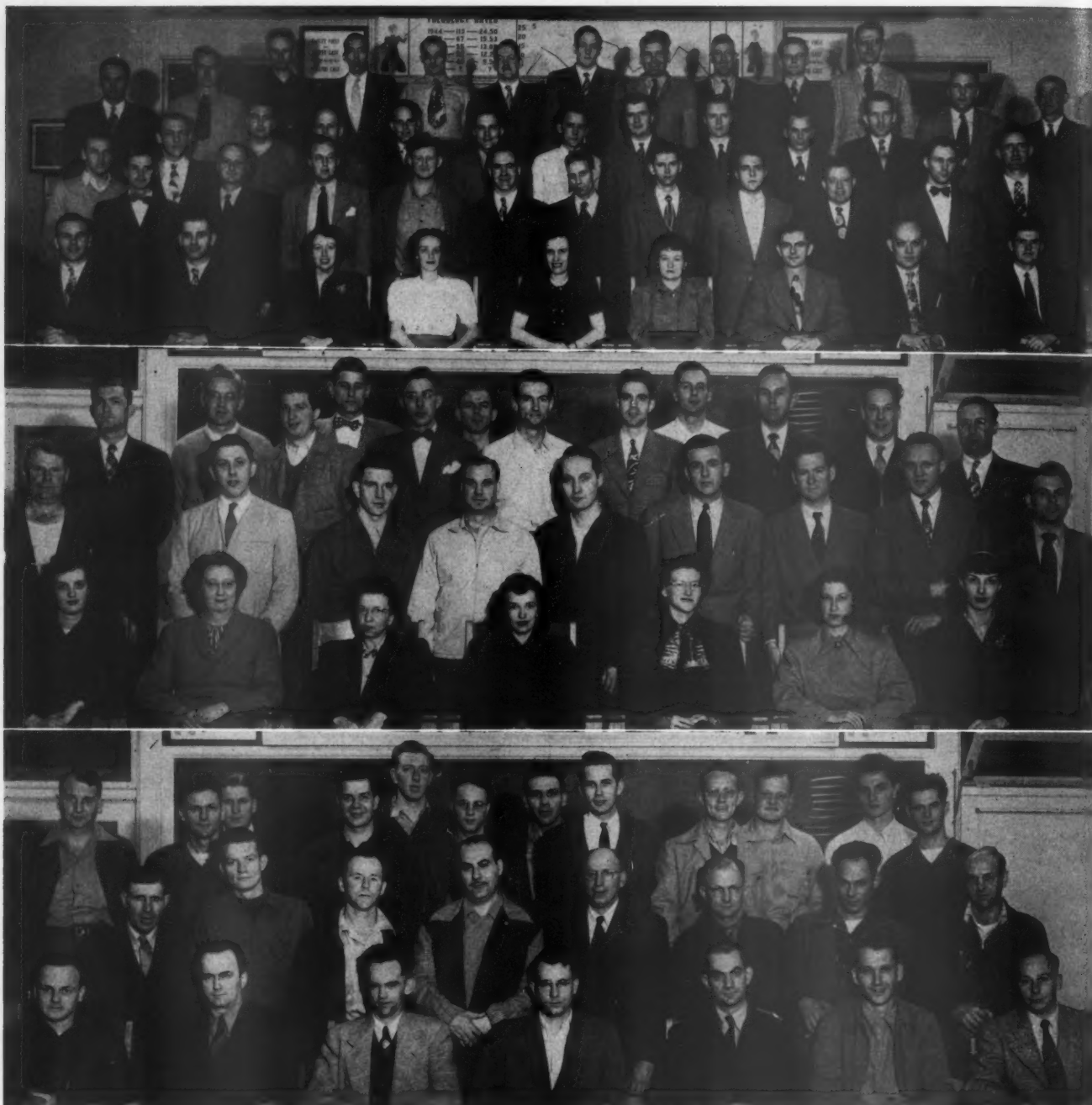
10 COTTRELL ADVANTAGES

that make Cottrells unsurpassed for all types of recovery problems, hot or cold, wet or dry

1. **LOWEST DRAFT LOSS** — only a few tenths of an inch w. g.
2. **LOWEST POWER COST** — only 1/2 to 1 kw. per 100,000 cu. ft. of gas cleaned.
3. **LOWEST MAINTENANCE COST** — all metal, few moving parts, no fire hazard.
4. **LOWEST LABOR COST** — operation can be fully automatic, if desired.
5. **LONGEST LIFE** — early Cottrell installations still operating after 39 years of continuous service.
6. **HIGHEST EFFICIENCY** — recovery efficiency approaches 100%, if desired.
7. **UNIVERSAL APPLICABILITY** — recover any suspension, solid or liquid — in any gas — over wide temperature ranges.
8. **ANY CAPACITY** — handle a few c.f.m. — or millions — with equal ease.
9. **MAXIMUM FLEXIBILITY** — readily adaptable to varying installation requirements.
10. **LOWEST OVERALL COST** — cost less per year of service, less per ton recovered. Often pay for themselves in a few months — always within a few years.

One of a Series

from Western Precipitation Corporation — pioneers of the commercial application of COTTRELLS and now selling COTTRELL recovery equipment in all parts of the U.S.A. and foreign countries.



STUDENTS AT CAMAS PAPER SCHOOL. At top, Second year students; center and bottom pictures, first year students.

Listed alphabetically they are, **FIRST YEAR:** Abbott, Donald E.; Agun, Edward William; Armstrong, Dorothy A.; Aronsen, Arthur N.; Bafus, Reuben; Barnett, Pierre Frederick; Blanchard, Floyd W.; Brinson, Donald; Burnet, Henry D.; Carr, Wilbert L., Jr.; Cowen, Isobel; Cudney, William R.; Daines, Hilarie; Ditewig, Robert F.; Dobo, Emerick J.; Dressel, Harold H.; Dunn, Leona A.; Eakin, Mildred O.; Earl, Chester R.; Field, William E., Jr.; Fleming, Richard L.; Foos, Herman; Giersch, Lauron R.; Gilardi, Robert C.; Hall, David L.; Holden, Donald F., Jr.; Johnson, John L.; Keller, Vactor H.; King, Arnold L.; King, Evolois A. R.; Knowlton, Jean; LaRose, Albert J.; Mabree, Virginia W.; MacNeill, Chester A., Jr.; Medalen, George O.; Meeker, Harlan M.; Mills, Lloyd G.; Moeller, Richard H.; Montgomery, Donald L.; Morris, Theodore J.; Mueller, Nicklaus A.; Nichols, Bruce Kent; Paris, Joseph A.; Parson, Fred Wm.; Pickering, Don A.; Plankington, Robert; Poindexter, Christian; Rink, George F.; Rosenfeld, Alan S.; Sanders, Wilbert; Sawyer, Elton G.; Saxe, Leonard; Schick, Conrad J.; Seida, S. Ozzie; Sobut, F. J.; Sollenberger, Donald D.; Stadelman, W. L.; Stoltz, Fred W.; Strong, Lester E.; Sutton, Charles

N.; Tall, Anna M.; Thornton, McClellan A.; Threefoot, Henry M.; Urquhart, Richard F.; West, Evelyn J.; Wilcox, Ben; Young, Charles E.

SECOND YEAR: Ackerman, A. Franklin; Allen, Louise; Ashton, Dan P.; Atkins, Gordon A.; Begley, Charles M.; Boettcher, Donald A.; Boettcher, Violet L.; Breitmayer, Theodore; Butler, Robert E.; Booth, K. G.; Boyle, J. J.; Bruning, Robert B.; Charters, George; Chevron, Claude F.; Church, Dudley F.; Cochran, R. L. Cook, William B.; Curtis, Max L.; Daggett, William G.; Davis, Paul T.; Day, Elizabeth M.; Donovan, John J.; Eakin, Glen B.; Ebaugh, Earl H.; Follette, Wallace J.; Grande, A. H.; Hagen, Lester O.; Hall, Howard C.; Hash, Charles R.; Herschler, Robert J.; Lackey, Homer B.; Langland, P. E.; McGimpsey, John W.; Newkirk, Donald N.; Nissen, James C.; Olds, Robert H.; Payne, Scott; Reilly, James R.; Runyan, Sam; Russell, Robert; Sawyer, Curt; Schmidt, Fred L.; Spence, John K.; Stewart, Robert G.; Standefer, Robert; Stamm, E. A.; Sykes, John M.; Theller, Hutton W.; Vogel, Ruben A.; Wagner, Marjorie V.; Warren, Wendell L.; Williams, Ralph J.; Woodward, John C.; Wuenschel, J. F.



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Cutter and Layboy increase cutter
output 50% to 300% keep
broke under 1/2 of 1%. *

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sustained-accuracy ROTARY CUTTER

Heavy Cast Frame, heavy tubing girts for rigidity. Insure accuracy, eliminate vibration.

Ball Bearings Throughout for smooth operation and accurate alignment at high speeds.

Length Constantly Maintained. Change-gear rough length adjustment and cone-pulley final adjustment insure accurate sheet length under all conditions.

Self-Sharpening Spiral Knife insures clean, sharp cuts on paper of any thickness.

Ball Bearing Slitters for clean slitting without dust.

Quick, Precision Adjustment of knife and squaring.

Infinite Paper Travel Speed Range — 0 to 700 feet per minute to suit working conditions.

Write for Bulletin 101

Clark-Aiken

sustained-operation LAYBOY AND DELIVERY

Heavy Rigid Cast Frame, instead of light structural shapes, minimizes vibration and wear, reduces broke.

Ball Bearings Throughout layboy and delivery for smooth operation, accurate alignment at high speeds.

Adjustable Speed Ball-Bearing Joggers. Smooth, free-working. Operated by their own 1/2 h.p. motor. Speed adjustable to any delivery conditions.

Rapid Pile Table Return — 59 seconds.

Fully-Adjustable Tapes. Variable speed take-off tapes eliminate jerking and tearing. Tape grip and tension adjustable for all conditions. Lower tape speeds adjustable for overlap. Adjustable tape guides. Tape travel speed synchronized with cutter operation.

Adjustable Air Pressure insures flat sheet delivery.

Write for Bulletin 201

THE *Clark-Aiken* COMPANY

PIONEERING IN PAPER MILL MACHINERY IMPROVEMENT SINCE 1828

Paper Mill Division
LEE, MASSACHUSETTS

* Based on sustained shake-down tests under actual mill conditions.

Personals

MIDDLE WEST



CLARENCE LARSON (left), promoted to Vice President in Charge of Production and General Manager of all three Minnesota & Ontario Paper Co. mills—at International Falls, Minn., and Fort Frances and Kenora, Ont. He will remain at International Falls, where he has been Resident Manager. He joined M & O in 1920.

HADLAI HULL (right), elected Secretary of M & O, with offices in Minneapolis. Graduate of Yale in '36, Yale Law School in '39, he was Commander in the U. S. Navy in the war and joined M & O in 1946. President Donald D. Davis announced these promotions.

Pres. Charles B. Clark Of Appleton Mill, Dies

Charles B. Clark, 66, president of Riverside Paper Corp., Appleton, Wis., died Apr. 6 while playing golf at West Palm Beach, Fla. He was playing alone but a caddy was with him. His wife was in Florida with him.

Mr. Clark also was a director of Kimberly-Clark Corp., was mayor of Neenah, Wis., from 1912 to 1919 and was prominent officer of Neenah and Appleton banks.

He graduated from Yale in 1904, then joined Kimberly-Clark, working in all departments of that company while serving as director and vice president. He succeeded his father-in-law, Judge Kerwin, as president of the Riverside company in 1920. Before that he was a founder and associate in the Neenah Hardwood Products Co.

Ed C. Hilfert is vice president and manager at Riverside.

A. C. REMLEY, vice president in charge of sales for Nekoosa-Edwards Paper Co., Port Edwards, Wis., and vice president and chairman of the sulfite bond group in the Writing Paper Mfgs. Assn., is a sales executive with an engineering background. He is a former city engineer of Appleton, Wis.

MARTIN B. HUTCHINSON was recently elected president of Brown-Hutchinson Iron Works, alloy fabricators in the pulp and paper mill field, Detroit, Mich. Other officers include Arthur W. Brown, vice president; A. C. Hutchinson, Sr., treasurer; W. M. Brown, secretary, and A. C. Hutchinson, Jr., assistant secretary-treasurer. Ray Shillum is sales manager for the alloy division.



MEMBERS OF COATING PANEL and officers of Ohio technical division who took part in recent meeting at Middletown, O., attended by 120 members and guests.

Back Row (l. to r.)—**H. A. SMITH**, Mead Corp., Chillicothe, Recording Sec'y of the group; **PHIL S. CADE** of Harding-Jones, the Chairman; **ARTHUR THURM**, Engineer of Champion Paper & Fibre Co., Hamilton, who is Vice Chairman, and **R. D. McCARRON**, of Stein-Hall, treasurer. Front Row (l. to r.)—**S. R. HOLMES**, Gardner-Richardson Co., Middletown, is Corresponding Sec'y; **JIM SIMPSON**, of Champion, Hamilton, who described Champion's knife-edge machine coater; **W. E. "TED" SOOY**, Vice President of Gardner-Richardson, who described the John Waldron Syncroset coater and John Waldron air-knife coater which run at high speeds, use high solids; and **OLIN W. CALLIGHAN** of Edgar Brothers, Kalamazoo, who was Moderator.

H. L. Kutter Ex-President of Black-Clawson, Dies

H. L. Kutter, former president of The Black-Clawson Co., died Mar. 2 at Hamilton, O. He was 77. After relinquishing the presidency in 1946, he continued as a director.

Mr. Kutter came to the U. S. in 1891. He had worked in boyhood in a European mill producing currency paper and other all-rag papers. He held engineering positions with several American paper companies before joining Black-Clawson in 1896.

NORMAN STAFFORD has been named employment supervisor of the Hamilton, Ohio, division of Champion Paper and Fibre Co. A veteran of World War II, Mr. Stafford started with the company in 1929 as a tabulation clerk. In recent years he has been assistant employment manager.

ARTHUR TOPMILLER has been named supervisor of safety of the Hamilton Division. A company employe for 20 years, Mr. Topmiller has in recent years served as safety engineer.

JOHN E. MINCH, general manager of Howard Paper Mills' Aetna division at Dayton, O., since 1943, has been elected a vice president of the parent firm, which had three Ohio mills.

LYALL C. STILP, purchasing agent of Kimberly-Clark Corp., Neenah, Wis., told about problems of procurement at a recent meeting of K-C mill men at Kimberly, Wis.

H. D. MacDONALD, representative for The Ohio Knife Company in the Middle West (600 So. Michigan Ave., Chicago), is the father of a seven-pound, 13-ounce baby boy born April 5 in Chicago. This is number four for the MacDonald family, two girls and two boys.

DR. EMIL HEUSER, authority on cellulose chemistry, now retired from faculty of Institute of Paper Chemistry, Appleton, Wis., who has many former students in this industry, has moved to 339 Vista de la Playa, La Jolla, Calif., from Downey, Calif.

MR. AND MRS. JOSEPH SCHEUER-MANN have announced the engagement of their daughter, Yvonne, to Mr. **JACK VANDENBERG**. The wedding will take place in August. Mr. Vandenberg is with the R. T. Vanderbilt Co. and makes his headquarters in Kalamazoo.

HOWARD H. PARKER, technical service representative for Hercules Powder Co., was transferred from Kalamazoo to Milwaukee. He was married to the former Alice Patricia King of Kalamazoo just before, so the population of that city was decreased by two.

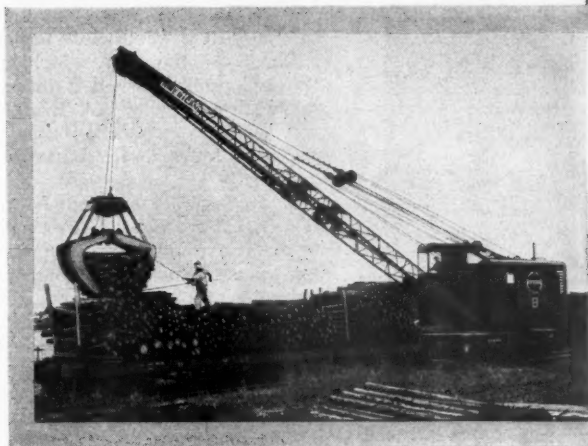
JOSEPH VANDEBURGT, of Appleton Wire Works, Appleton, Wis., was elected secretary-treasurer of the national executive board of the American Wire Weavers Protective Association, representing all wire weavers in the U. S.

TRUMAN A. PASCOE, technical director of Nekoosa-Edwards Paper Co., Port Edwards, Wis., will have a second daughter in college come next fall—one already being there.

JOHN R. KIMBERLY, vice president of Kimberly-Clark Corp., Neenah, Wis., was recently elected a director of Georgia Pacific Plywood & Lumber Co. He has been with K-C 24 years.

BILL MONSEN, well known traveler for Hooker Electrochemical Co. in the Middle West area, saw the Pacific Coast plant of that company on a recent trip.

FIVE...SIX...
pick up sticks



SEVEN...EIGHT...
lay them straight

NINE...TEN...do it again!

The American Dieselectric is both a locomotive and a crane. But when you see it handling pulpwood, you will classify it also as a first class loader and stacker. Specially designed models like this one, built for Minnesota and Ontario Paper Company, cut the cost of "picking up sticks" to rock bottom. Notice the high, off-center cab, which lets the operator see the top of high pulpwood piles. Think of *diesel* power to the deck, *electric* power to the wheels... the great, basic invention that made the DIESELECTRIC. With 14,000 lbs. of wearing parts eliminated; with new, speedy "live boom" action; with a wonderfully clean, efficient machinery deck, the AMERICAN DIESELECTRIC offers such savings that it actually *pays for itself in five years!* Want more facts? Mail the coupon for illustrated catalog.



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May, 1949

59



"The outlook for a permanent timber supply in North America sufficient for all our needs is more hopeful today than at any time in the past."—Royal S. Kellogg, secretary of Newsprint Service Bureau, New York.

MONTREAL MEETING REPORT

At the 31st annual meeting of the Woodlands Section of the Canadian industry association, held in Montreal in late March, J. W. Paterson, woods manager of The E. B. Eddy Co., was re-elected chairman. Gordon Godwin, woods manager for the Ontario Paper Co., was re-elected vice chairman.

Two new councillors elected were J. H. Merrill of Brompton Pulp & Paper, Nipog Nipigon, Ont., and J. A. Michaud, Consolidated Paper Corp., Grand Mere, Que., who join a board of eight other hold-overs beside the top officers.

Edward Bonner, chief forester, Spruce Falls Power & Paper Co., Kapuskasing, Ont., received the J. A. Bothwell conservation award for his research in spruce regeneration and operation of a nursery at Kapuskasing, Ont.

Charles A. Gillett, managing director American Forest Products Industries, Inc., Washington, D. C., gave a great deal of data on U. S. forests which are published in **PULP & PAPER'S** North American Review Number soon to be out.

"Nothing is more important to our wood-using industries than an adequate and stable supply of raw materials, he said. "Fortunately, wood is the one great natural resource that replaces itself. Land that produces timber will grow more timber."

Training Foremen

A training program for present and



J. W. PATERSON (left), The E. B. Eddy Co., and GORDON GODWIN, Ontario Paper Co., elected Chairman and Vice Chairman again of Canadian industry's Woodlands Section.



prospective woods foremen of the Spruce Falls Power and Paper Co., Ltd., was outlined by D. Dyer of that company. Owing to the expansion in its forest operations, the company required additional foremen. Therefore it started a four months' course in foreman training. A training syllabus was prepared and is strictly adhered to, said Mr. Dyer. Trainees make an actual reconnaissance of the forests to plan cutting and lay-outs of roads. They study accounting procedures, fire fighting methods, logging, use of mechanical equipment and other features of woods operations. At the end of the course, the trainees prepare a paper on their work and these are discussed. Such a course is not inex-

pensive, said Mr. Dyer, but his company has found it a worthwhile project.

"Prior to the war," Mr. Dyer said, "camp foremen served a three to four-year apprenticeship; but, owing to expansion of forest operations, the company started a four-month course in foreman training."

G. E. LaMothe of Price Brothers, said he felt that mechanical saws have a place in the conventional logging of four foot pulpwood. To achieve good production with this saw, the user requires training and experience. From tests, said Mr. La Mothe, the performance of the mechanical saw, used by men of varying skill, lies somewhere between 114% and 155% of the performance of the bucksaw under similar conditions.

Trends in costs of hauling pulpwood by truck were outlined by B. J. McColl, the section's mechanical engineer. The pulp and paper industry is increasingly turning to trucks for the hauling of pulpwood, said Mr. McColl.

Report on Caterpillar

"Caterpillar" DW-10 wheel type tractors proved flexible and efficient in hauling sleighs of pulpwood over snow and iced roads said A. D. Williscroft, Just Equipment & Supply Co., Montreal. The test was conducted on operations of Price Bros. & Co. near Rimouski, Que. Sleighs were hauled over both snow roads without a roadbed and iced roads.

SOUTH ANALYZES WOOD VALUE

Last month in this section we reported briefly on the Southern Forestry Conference meeting in Montgomery, Ala., featured by an address by James H. Allen, vice chairman of the board of St. Regis Paper Co., in which he dramatized the phenomenal growth of the Southern wood fiber market by comparing 1933 and 1948 production, investment and employment figures. And still, he said, the wood market in the South is in its infancy.

"In 1933 in the Southern states, millions of acres of cut-over and second growth pine had lapsed into tax delinquency, because owners felt the properties were not worth paying taxes on," he said, adding



JAMES H. ALLEN, Board Vice Chairman of St. Regis Paper Co., was featured speaker at Southern Conference in Montgomery, Ala.

that "today, these acres have been converted into one of the most salable assets

possessed by the South. How many folks in the South realize the annual crop of wood fibers used by pulp and paper mills is actually equivalent to a 24,000,000 bale cotton crop? Or, that the mills, with all the properties set aside for their use, far exceed a billion dollars."

Here are more pictures of some of the participants in the Montgomery meeting and a summary of other talks.

Mr. Allen's remarks, made as the banquet speaker, were preceded by a full day's discussion of forestry. The group was welcomed by "Big Jim" Folsom, Alabama's governor, who said he'd give new industries as much as possible under the law.

William M. Oettmeier, Superior Pine Products, Fargo, Ga., who was re-elected association

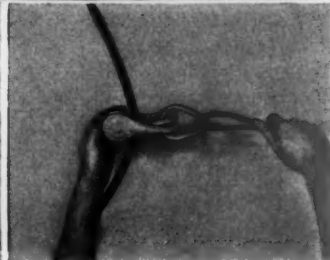
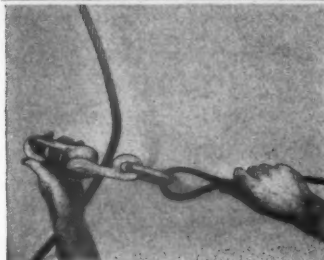


To snatch to the mainline just open the cheeks of the block, hook the sheave over the line and swing the cheeks back in place. Then pull in the mainline.

The bunching is automatic as the line runs through the snatch blocks.



HOW TO BUNCH A FULL LOAD OF LOGS WITH ONE PULL



The new CARCO Rigging Catalog states, "The Marathon Snatch Block provides one of the fastest and easiest systems ever developed for bunching scattered light logs for a high lead, arch or log cart load.

"Chokers with snatch blocks attached are pre-set in the woods. The mainline is taken out and hooked onto the most distant log of a group which will comprise the load. The line is then pulled sideways or zig-zag fashion to each log and each snatch block is hooked over the mainline. As the line is pulled in, the logs are automatically bunched. The system accomplishes bunching and hauling in a single operation."

The new CARCO catalog also shows manganese ferrule choker hooks, tractor hooks, eye sockets, a new exclusive clevis hitch, manganese drawbar hooks, and other rigging fittings for logging.

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May, 1949

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president, emphasized the high effectiveness of the organization in its role as representative of tree farmers. As such, the organization obtained many benefits in the legislative field, one being the obtaining of income tax capitalization of cutting returns. To take advantage of this, forest land values must be established with the Internal Revenue Department.

Henry J. Malsberger, Southern Pulpwood Conservation forester-general manager, said the paper mills will always be in the market for pulpwood produced by other landowners; currently 85% is supplied on the open market.

J. V. Whitfield, Burgaw, N.C., timber grower, presided over a panel discussion on "Looking At the Pulpwood Industry." Julian McGowin, of W. T. Smith Lbr. Co., Chapman, Ala., saw "no basic conflict" between paper and lumber industries. The lumberman needs the paper industry as an outlet for thinnings, and there are many examples of exchange of saw logs for pulpwood.

Ernest P. Davis, Rayonier, Inc., Fernandina, Fla., said the permanence of the southern paper industry is to be based upon production at 100% capacity of trees per acre. Walter Randolph, Montgomery, Ala., president, Alabama Farm Bureau, said farmers realize the paper mill has enhanced their land values. W. E. Dunham, of Savannah River Lbr. Co., said one state in the South could produce 10 million cords per year on one-half its forest land acreage with fair stocking. He placed the number of foresters employed by private industry at the South as 600. H. M. Seaman, vice president and general manager, Kirby Lbr. Corp., Houston, Tex., said the paper mill and forest ownership are hand-in-hand as both must prosper with good forest practice.

M. H. Collett, West Virginia Pulp & Paper Co., New York, was moderator of progress in pulpwood production. Speakers included Earl Porter, general manager of Southern Kraft Div.,

International Paper Co., Woodlands, Mobile, Ala. Mr. Porter was elected a regional vice president of the association.

Growing, marking and harvesting of pulpwood was the panel topic the second day, with Frank Heyward, Jr., Gaylord Container Corp., as leader. He referred to Dr. Herty's showmanship, citing how he made pulp from 7-year-old trees to dramatize southern pine as a paper source. Marion Renfro, Quitman, Ga., told how they were grown in alternate 4-foot rows with corn. Corn paid for planting the pines.

S. N. Cooper, Timber Lands, Inc., Brunswick, Ga., said they would not consider growing pulpwood only but that material should be sold into other products when higher monetary yield could be obtained. The problem is not allocation but economic segregation.

N. W. Sentell, Southern Advance Bag & Paper Co., Hodge, La., outlined the qualifications of a good tree marker.

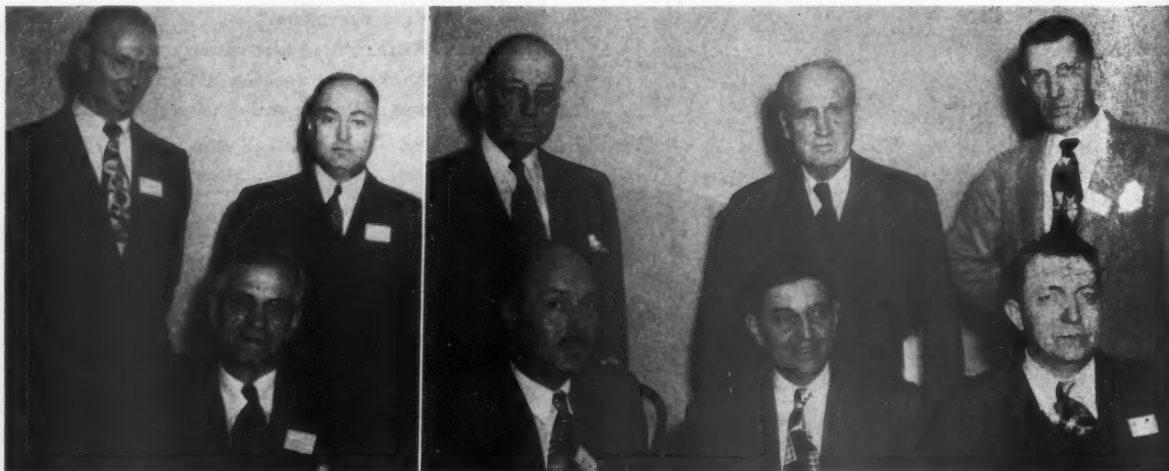


S. N. COOPER (left), Mgr., Timberlands Inc., Brunswick Pulp & Paper Co.'s affiliate, and FRANK HEYWARD, Public Relations Forester, Gaylord Container Corp., speaking at the Montgomery, Ala., Conference.



MEN AT MONTGOMERY included (l. to r.): JOHN KELLOGG, Winnfield, La., Consulting Forester and Ass'n. Director; RUSS R. REYNOLDS, Crossett Experimental Forest, Crossett, Ark., Ass'n. Director; H. M. SEAMAN, General Manager, Kirby Lumber Cop., Houston, Tex.; and ERNEST P. DAVIS Rayonier, Inc., Fernandina, Fla.

AT MONTGOMERY MEETING (l. to r.): Front row, W. E. DUNHAM, President, Savannah River Lumber Co., Savannah; PAUL W. SCHOEN, Ass'n. Executive Secretary, Valdosta, Ga.; WILLIAM M. OETTMEIER, Manager, Superior Pine Products, Fargo, Ga., re-elected Ass'n. President; J. V. WHITFIELD, Tree Farmer, Burgaw, N. C., elected Vice President.



Back row, J. HERBERT STONE, U. S. Regional Forester, Atlanta; JULIAN MCGOWIN, W. T. Smith Lumber Co., Chapman, Ala.; MARK FLEISHEL, President, Perpetual Forests, Inc., Shamrock, Fla., Executive Committee member; E. P. HARBOARD, timber owner, Savannah, Tenn., Executive Committeeman; ARTHUR EMMERLING, Southwestern Foresters' Ass'n., Little Rock, Ark., Executive Committeeman.

Harold Foil discussed thinnings on Gaylord Container Corp.'s 20-22 year old pine plantations. One stand, 22 years, has never been thinned; has 40 cords per acre. Stands affected by canker are being thinned.

During the past 10 years pulpwood cost laid down in the yard has increased from 19% to 29%, declared Lucian A. Whittle, procurement manager for Brunswick Pulp & Paper Co., Brunswick, Ga.



"BIG JIM" FOLSOM, (right), Governor of Alabama, was one of the speakers at Montgomery meeting. Above he is pictured at a recent meeting in Savannah with G. W. E. NICHOLSON (left), Vice President and Manager of Mills and Factories, Union Bag & Paper Corp.

LIFT PULPWOOD for LESS with LORAINS

THIS



NOT THIS



Paper in the making at the Marathon Paper Mills of Canada, Ltd., Port Arthur, Ontario, a Lorain-41 is shown casting 8 ft. pulpwood into the mill pond from cars.

Handle pulp wood by the stack . . . not by the stick . . . and costs will give way to profits! Every lift with a Lorain Crane is a big one. One man at the controls does the work of a dozen working by hand. And these iron "work horses" never fatigue — keep up a steady pace day or night, summer or winter. A Lorain on your job will work wonders in boosting production — saving time and man hours.

Then add all-round work uses with a Lorain and you'll have the formula for still greater profits. For these Lorains can be fitted for many jobs—with grapple (shown), clams, drags, hooks of all kinds, shovel or hoe booms—to keep busy on scores of jobs in any season. Ask your Lorain Distributor for recommendations!

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Cranes
Clamshells
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Hoes



Any of 5 types of booms can be interchanged on any of the three Lorain Series, crawler or rubber-tire mounted.



75 LORAINS FOR EVERY CLASS OF WORK

Lorains are also available on rubber-tire mountings to add travel speed to your lifting jobs. 2-engine Moto-Cranes (left) with speeds up to 33 m.p.h. or single-engine Self-Propelled models (right) with speeds up to 7 m.p.h. All in all there are 75 combinations of mountings, front end equipment and capacities.



SHOVELS — CRANES
DRAGLINES

THEW

Lorain

CLAMSHELLS — HOES
MOTO-CRANES



AT MONTGOMERY meeting reported on previous pages, among exhibitors were the Mall Tool Co. group. Left to right: Veden H. Smith, Tallahassee (Fla.) distributor; H. A. Babcock, Knoxville, Tenn., company representative; and Morris W. McKenna, Birmingham, Ala., Mall field man.

International Harvester Book Describes 4-Fuel Engineers

Industrial engines and equipment for their operation on gasoline, kerosene, distillate or natural gas in a wide variety of applications, are described and shown by International Harvester Co. in a new 12-page catalog covering four carburetor-type engines. Copies of the booklet, A-164-MM, "International Carbureted-Type Engines and Power Units," are available on request from the company, 180 N. Michigan Ave., Chicago 1, Ill.

SOUTHERN PULPWOOD CONSERVATION ASSOCIATION has completed a new educational film on forest fire control titled "Fire Call" that describes the old and new methods of preventing and controlling forest fires. It indicates the tremendous savings in forest wealth made possible by utilizing modern methods of locating forest fires and extinguishing them rapidly with mechanical equipment and trained fire crews.

NEW McCULLOCH full-swivel bow saw has capacity of 20 inches. cuts timber in any position without pinching or wedging. Even with this log in a position that would ordinarily cause severe pinching McCulloch saw cuts through without prying. The engine develops full 5 h.p. for fast cutting in any type of wood, yet entire saw weighs only 63 lbs. complete.



McCulloch Announces New Bow Saw

A new 20-inch bow saw, designed to cut timber in any position without pinching, prying, or wedging, has been announced by McCulloch Motors Corp., 6101 W. Century Blvd., Los Angeles 45, Calif.

Baie Comeau Sawyer Wins CPPA Contest

Leonard Poulin, 23, of St. Godefroy, Quebec, representing the Quebec North Shore Paper Co., Baie Comeau, won the finals in the nation bucksaw contest at the Montreal Sportsman's Exhibition this spring, sponsored by the technical section of CPPA.

Finalists wear sweaters bearing the name of their company, and prizes are money, trophies and gifts. Mr. Poulin, using a Sandvik 10 by 42-inch saw with non-adjustable frame and a 42 by one-inch Sandvik blade, averaged 8.5 seconds for twelve cuts of a 10-inch stripped green spruce log. He obtained 23 out of a possible 24 points.

Runners-up were Salomon St. Cyr, of Limoilou, Que., representing Canadian International Paper Co., with 18 points and an average of 8.7 seconds; and Leopold Carrier, of Kedgwick, N.B., representing New Brunswick International Paper Co., with 11 points and an average of 9.2 seconds.



CHARLES A. GILLET (left) has become managing director of the American Forest Products Industries, Inc., a national educational association of pulp and paper, lumber and plywood industries with headquarters in Washington, D. C., and field offices in New Orleans, Boston, and Portland, Ore. Mr. Gillett succeeds Chapin Collins who will resume publication of newspapers he owns in the state of Washington. Mr. Gillett has been Chief Forester for AFPI and previously was Forester for the Seaboard Air Line Railway.

J. H. W. CONKLIN (right), Sales Manager of the Industrial Truck Division, Clark Equipment Co., Battle Creek, Mich., was elected President of the Materials Handling Institute at election of officers held in Philadelphia at recent 3rd National Materials Handling Exposition. Other officers: First vice-president—J. G. Bucuss, Acme Steel Co.; second vice-president—J. P. Lawrence, American MonoRail; secretary-treasurer—R. Kennedy Hanson.

Bill Threatens to End Wood Contracting Business

As this issue went to press, H. R. 2893, which would enlarge and amend Social Security provisions, was still in the House Ways and Means Committee in Washington, D. C. Because of its highly complicated nature qualified observers felt it would remain there for some weeks.

The bill is of particular concern to the pulp and paper industry because its passage in present form would probably mean the ultimate elimination of independent contractors in connection with wood procurement. Many thousands of small operators and individual wood suppliers might be put out of business, according to students of the bill.

H. R. 2893 would repeal H. J. Res. 296 which was passed last year and defined "employee" as it is generally understood. The change would permit a return to a situation threatened last year in which the Administrator of the Social Security Act could hold that independent contractors and their employees were employees of the person or company contracting with them.

Pacific Nations Forests

A postwar study of the forest industry problems and resources of the United States, Russia and 26 other Pacific countries, published by Stanford University press, is a 300-page volume titled "United States International Timber Trade in the Pacific Area." It was written by Ivan M. Elchibegoff, economist and teacher with a background both in the United States and Russia. He wrote "the U. S. is on the eve of a revolution in the pulp and paper industry" and declared "the present changes in the industry constitute a logical development for a highly industrialized country."



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- Their starting and combustion systems, fuel feed, speed governing, torque control, lubricating methods and overall rugged construction account for

their superior performance and long-lived stamina.

- Since reliable, economical power is "good medicine" for any power-using business, it will pay you to contact your International Power Unit Dealer and get International Diesels on your operations now.

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This International UD-24 Diesel Power Unit replaced a steam plant at the Duke Lumber Company's planing mill at Alachua, Florida. It promptly cut operating costs and eliminated the fire hazards of the old unit.

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DIESEL ENGINES
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**INTERNATIONAL
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May, 1949

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Personals

SOUTH

COVER C. PORTER, who has been promoted to Assistant to Mill Manager at Southland Paper Mills, Lufkin, Texas, where he was Chief Chemist. He will have authority over mill operation under Vice Pres. and Mgr. W. L. McHale.



COVER C. PORTER, for the past five years chief chemist for Southland Paper Mills, Inc., Lufkin, Texas, has been named assistant to the mill manager, a newly created position. In this capacity he will have authority to coordinate and direct mill operation. Announcement of the promotion was made by **W. L. McHALE**, vice-president and mill manager for the company. Mr. Porter's position as chief chemist was filled by promotion of **FRED W. BISHOP**, assistant chief chemist. Mr. Porter is a Texas A. & M. graduate. Mr. Bishop is a graduate of the University of Mississippi. Both had paper mill experience before joining Southland.

GARLAND S. FRANCIS, who has been associated with Carolina Paper Board Co., Charlotte, N. C., has been named general manager of the Austell Paper Board Corp., Austell, Ga. The Austell company is now building a new plant of 60 to 65 tons per day capacity, scheduled for production in mid-summer. **ROSS PUETTE**, president of Carolina Paper, is its principal.

HOWARD HINMAN, president of International Paper Co., visited his son, Howard, Jr., at the International mills at Bastrop, La., recently. The senior Mr. Hinman was en route from Phoenix, Ariz., to his home in New York.

J. SIMPSON, who will be materials superintendent of the new Coosa River newsprint mill at Childersburg, Ala., under management of Kimberly-Clark Corp., was a guest at the Kimberly-Atlas mills management club.

Fraser of Simonds Starts 31st Year in South

W. T. "Bill" Fraser, of P. O. Box 1361, Greenville, S. C., started last month his 31st year covering the Southeastern area for Simonds Saw & Steel Co. of Fitchburg, Mass. Bill is well known in the mills in his area after 30 years of touring them.

GEORGE E. SCHOFIELD, chief chemist of Rayonier, Inc., Fernandina, Fla., took the bows in a recent ceremony there when he received the safety plaque for 1,000 consecutive days without lost time in behalf of the technical and water plant departments.

NEIL M. BARBER, sales representative for Hooker Electrochemical Co., Niagara Falls, N. Y., has been assigned to the Southern Seaboard states and also east Pennsylvania. He goes into this southern area after being representative in New York and western Pennsylvania.

J. J. (Josh) WARD has been named maintenance engineer for Union Bag & Paper Corp., Savannah, Ga. He succeeds **William McIntosh, Jr.**, who resigned to enter the paper mill supply and equipment business. Mr. Ward had been assistant to Mr. McIntosh.

Southern Kraft Holds Wage Conference May 9

Annual wage negotiations between management and the AFL unions to decide upon rates and renewal of contract for 10,000 employees of ten plants of International Paper Co.'s Southern Kraft division will be held in Mobile, Ala., May 9. This sets the wage pattern for much of the South.

Killen Goes to London

James S. Killen, young vice president of the AFL Pulp Workers Union, sailed Feb. 12 on the Queen Mary to take up duties as labor advisor to the ECA mission in London. His duties are described as working closely with British labor leaders.

Economic Cooperation Administrator **Paul G. Hoffman** announced Mr. Killen's appointment after the Pulp Workers Union granted him leave. In 1947-48 he had been on leave in Japan as labor division chief of the occupation forces.

Mr. Killen was formerly employed in pulp mills in northwest Washington state.

ARTURO RODRIGUEZ has left his position as power and electrical superintendent of the Atenquique mill in Mexico and is now associated with an affiliate engineering company of Ebasco in Mexico City. Sr. Rodriguez is a 1933 graduate of Georgia Tech.

Leesville, La., Wants Mill

Local interests in Leesville, Vernon Parish, La., active in connection with location of a proposed paper mill there have stated that such an enterprise would be assured of a pulpwood supply, based on a canvass of land owners conducted by the Chamber of Commerce.

About 52% of all wood land publicly held within a radius of 50 miles of Leesville, is in hands of owners averaging not more than 80 acres per owner.

Replies of these owners favored granting of cutting rights by the U. S. Forest Service to the proposed mill in the extent of 75,000 cords per year for 20 years from the Kisatchie National Forest.

Camp Polk, at Leesville is a possible mill site. The camp has two units, the first

of which was built of pre-war materials. Its facilities include a complete sewerage system, a water supply of nine million gallons per day, a railroad spur system with large trackside warehouses and shop buildings.

It has been stated that within a 50 mile radius there is a stand of 5,740,000,000 board feet of pine timber of nine inch d.b.h. and 16,750,000 cords of pine pulpwood from 5 inch to 9 inch d.b.h. The hardwood stand is equivalent to 28 million cords. Within a 75 mile radius is the entire Kisatchie National Forest, containing 86,863 acres of which 19,300 have been planted.

E. A. Charlton, New York engineer, has been identified with the Leesville paper mill project.

One of the Men Behind Eastwood Wires...

Jack Cove

Knows how to "baby" fourdrinier wires

After all the care that goes into fashioning Eastwood wires, Jack Cove won't let anything happen to spoil their perfection. That's why he carefully makes a "cocoon" of soft packing to protect the finished wire. Next, he cradles it in a

strong wooden box. All of this loving care is taken to make sure the wire reaches the mill in perfect condition, ready for a long and useful life of papermaking. Eastwood employees know that our wires represent *their* reputation too.



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Portland, Oregon



Here is a valve that not only meets the severe test of handling corrosive fluids, but actually takes the place of two valves while doing it. This double duty valve is the *ESCO* Screw Down Swing Check, an exclusive *ESCO* development which takes the place of both the conventional swing check and globe stop valves.

In fully open position it is a freely swinging check valve. Screwed down it will either throttle or stop flow. The economy of one long-lasting, easily-operated valve instead of two separate pieces of equipment is obvious. Sizes range from 4 inches to 12 inches.

RESISTS CORROSION

ESCO Screw Down Swing Check valves are cast of corrosion resisting stainless steel. Standard analyses are available for common corrosives, and for the unusual problem *ESCO* can produce a special analysis to meet particular conditions of service.

BUILT FOR LONG LIFE, LOW MAINTENANCE

The *ESCO* Screw Down Swing Check valve embodies the most approved features of design including outside screw and yoke construction, high disc lift, smooth disc contours, unrestricted port openings and large diameter seats. These features promote long service life, low maintenance costs and trouble-free operation.



Ask for Illustrated Literature

The new *ESCO* catalog, "Stainless and High Alloy Steels in Process Equipment" illustrates other *ESCO* valves, and gives detail drawings and dimensions. Also included is data on resistance of *ESCO* stainless alloys to a variety of corrosive agents. Get a copy of this catalog from your nearest *ESCO* representative, or use the coupon below... Electric Steel Foundry, 2166 N.W. 25th Avenue, Portland 10, Oregon. Offices in Eugene, Oregon; Chicago; Honolulu; Houston; Los Angeles; New York; San Francisco; Seattle; Spokane. In Canada... *ESCO* Limited, Vancouver, B.C.

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Personals

NORTHEAST

Hammermill Paper Co. Announces Sales Changes

Hammermill Paper Co. announces appointment of George J. Smart as district sales manager of the eastern territory, headquarters, Chanin Bldg., New York City. John E. Franzen, formerly manager of the New York City office, has been made manager of sales research at Erie, Pa.

Hammermill has established a Chicago office to serve the Midwest at One LaSalle St. Building with William W. Woodbridge as district sales manager. Robert F. McMahon is new district sales manager of the southern territory.

Wilbur T. Eldredge has been named acting manager of product development; Douglas E. Hefferan, supervisor of safety paper sales, and John Studenly, supervisor of technical paper sales.

WENDELL H. COWLES, vice president of Bulkley, Dunton & Co., New York City, has purchased a 365-acre dairy farm at Kinderhook, N. Y., where he plans to raise beef cattle.

T. H. TRIMBLE, with Hooker Electrochemical Co. since 1934, has been appointed eastern sales supervisor in the territory from eastern Ohio's boundary through the Atlantic states. His headquarters will be in Niagara Falls, N. Y.

AN EXCLUSIVE PHOTO of one of this industry's most active groups, Delaware Valley technical section, which meets each month at Engineers Club, Philadelphia. **FIRST ROW** (l. to r.): Elmer K. Stilbert, the Speaker, Dow Chemical; Lois V. Hans, Hercules Powder, and Secretary of the section; John Weidner, Container Corp. of America, Chairman of the section; Samuel M. Rotundo, Daniel J. Lorden, Maurice V. Gallagher, Vincent Vozzo, all Container Corp.; Francis Desmond, du Pont; William W. Graham, du Pont; Ralph E. Green, Thwing Albert, Inc.; J. H. Bradner and Richard J. O'Brien, du Pont.

SECOND ROW: Ralph W. Shaffer, MacAndrews & Forbes; William D. Marshall, Mathieson Chemical; L. F. Borstein, Synvar Corp.; Joseph M. Hoopes, Synvar Corp.; Frank J. Lovegren, W. C. Hamilton & Sons; George K. Boger, Jr., W. C. Hamilton; Byron C. Miller, P. H. Glatfelter Co.; Philip H. Hershey, Glatfelter and William D. Rice of Glatfelter; P. A. Paciello, du Pont; H. T. Nicolson, D. of C. Paper Co.; George Detwiler, American Cyanamid Corp.; L. E. DeLauter, Curtis Publishing Co.; C. R. Beeson, American Bitumuls Co.

THIRD ROW: Emil R. Padavic, Container Corp.; Alex McInnes, Pusey & Jones; Harry Farra, Moore & White; P. Andrew Jackson, Pusey & Jones; Robert W. Howard, Moore & White; Edward Albert, Thwing Albert; V. Jacobsen, Ciba Co., Inc.; R. Wiggins, Glassine Corp.; Jeanne Fisher, Glas-

P. H. GLATFELTER, president of P. H. Glatfelter Co., with paper mill at Spring Grove, Pa., has been named chairman of the Keep Pennsylvania Green committee. The Pennsylvania Forestry Association sponsored Pennsylvania's entry in the Keep America Green fire prevention program.

ED DAWSON has joined the sales force of the Roosevelt Paper Co., Philadelphia, Pa. He was formerly associated with Jessup and Moore Paper Co., for almost 40 years. During the past ten years he was in charge of production, sales, and service.

VERN TIPKA, and his wife, Nita, have moved to Lilacstead, Wilton, Conn., and he will be commuting from there to Manhattan in connection with his new duties as engineer for the News Print Bureau. We announced in our last issue that Mr. Tipka, formerly sales representative for Bird Machine and a former technical director at Hawley Pulp & Paper Co. (now Publishers Paper Co.), has accepted the News Print Bureau appointment. The Tipkas formerly lived in Evanston, Ill.

ARCH CARSWELL and REGINALD L. VAYO have been elected vice presidents of St. Regis Paper Co., New York. Mr. Carswell is general sales manager of the Multiwall Bag Division, headquarters in New York. Prior to 1948 he was Pacific Coast manager of the division. Mr. Vayo joined the company in 1945 to take charge of pulp sales, having been manager of the Foreign Department of Brown Company and was with WPB during the war. Mr. Vayo will now direct sales of Kraft paper and board as well as pulp.

JOSEPH MAZER, treasurer of the Hudson Pulp and Paper Co., New York City, with mills in New England, Pennsylvania and Florida, has accepted the position of chairman of the National Paper Division of the United Jewish Appeal on behalf of the UJA's 1949 nation-wide campaign for \$250,000,000 to support a program of refugee aid, overseas reconstruction and settlement in Israel. Mr. Mazer is the son of Abraham Mazer, president of Hudson Pulp & Paper, who recently contributed half a million dollars to the current UJA drive — the largest single gift made thus far to the national campaign.

KARL CLAUSON, secretary of the Association of Pulp Consumers, has a new hobby—painting in oils. His first work was, reasonably enough, a painting of a British Columbia pulp mill.

HAROLD H. FISH has been appointed representative for the Draper Brothers Company in lower New York State, New Jersey, Pennsylvania, Maryland, Delaware and West Virginia. Mr. Fish comes to the business of handling "Draper Felts" with considerable experience, having been associated with the paper industry since 1922 as sales representative covering the entire east coast of the U. S. His headquarters will be at 210 Sedgwick St., Syracuse, N. Y., or he may be addressed in care of Draper Brothers, Canton, Mass.

THOMAS C. BOWEN, who retired 12 years ago as assistant production manager of Parsons Paper Co., Holyoke, Mass., died recently at his home near there in West Springfield. He was 63. During his career he was with Strathmore, Rising Paper, American Writing and Ticonderoga Paper Co.

sine; C. L. Brickman, Thomas M. Royal & Co.; H. A. Lips, du Pont; J. Macadam, National Vulcanized Fiber.

FOURTH ROW: August S. Erasmus, Glatfelter; Z. E. McGish, Booth Chemical; Helen Marie Dearden; George Borden, Jr., Riegel Paper Corp.; Philip E. Tobias, Edw. Stern & Co.; George V. N. Marin, Chicopee Paper Co.; P. S. Martin, Dow; J. J. Schwenkler, Container; Arthur G. Appleboom, Springfield Coated Paper Co.; H. E. Scherer, Glassine; D. Kenneth McCurdy, Glassine;

FIFTH ROW: Norman Smith, Reliance Electric; John Harper, Downingtown Mfg. Co.; Robert A. Sloman, Pusey & Jones and John T. Moss, Pusey & Jones; E. J. Barber, Hercules Powder; Dr. John Higgins, Hercules Powder of England; Gerald Keim, Hercules; M. N. Fineman, M. O. Yeiter and T. J. Drennen, Rohm & Hass; L. W. Crouse, Penick & Ford; K. R. Watt, Curtis.

SIXTH ROW: W. S. Bradford, E. W. Twitchell; L. Jay Smith, McCoy Paper Products; S. G. Briscoe, Pusey & Jones; R. H. Underdown, American Plywood; R. H. Walsh, du Pont and W. W. Pockman, du Pont; Nat Frisch, Stein Hall; L. M. Sutherland, Sutherland Refiner; L. W. Carpenter, E. W. Twitchell.

SEVENTH ROW: Paul Easton, Bulkley Dunton; John Gercke and S. Maxwell Stettner, Stein Hall; Charles A. Shubert, P. C. Evanoff, F. W. Goetz, E. J. Aspinall, J. R. Coursault, B. J. Zarsky, J. Devinney, J. A. Cullerton, all of Mead Corp.



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Personals

PACIFIC COAST

Harold Ahlskog Heads Simpson Woodfiber Division

Following retirement of C. H. Kreienbaum as president of Simpson Logging Co., Carl J. Macke, vice president and general manager of the company's Woodfiber Division in Shelton, Wash., also is planning retirement by the end of this year, and has left on a trip to Europe to visit fiber and pulp operations.

Mr. Macke's son-in-law, Harold Ahlskog succeeded him as general manager of the Woodfiber Division, which operates an insulating board plant. Mr. Macke will serve in an advisory capacity until Jan. 1.

Mr. Ahlskog was a former all-Coast football star while at Washington State College where he graduated in 1940. He headed a Simpson plywood operation at Shelton and recently had special duties at the new lumber mill at Klamath, Calif.

William G. Reed, chairman of the board, succeeded Mr. Kreienbaum as president. Mr. Kreienbaum's retirement was due to doctor's orders, it was announced, but he is continuing as vice chairman.

Ed Weber Passes

Edward Adolph Weber, 70, sulfite superintendent at the Oregon Pulp & Paper Co., Salem, Ore., died of a heart attack at his Salem home March 24. Weber had been superintendent for 20 years, and had been engaged in the paper industry most of his life.

Born in Germany Sept. 9, 1878, he came to the U.S. at the age of 17. He began in the paper industry at Palmer Falls, New York. He was employed at Newton Falls, N. Y., Austin, Pa., and Watertown, N.Y., before becoming superintendent for Central Paper Co. at Muskegon, Mich. He held that post for 18 years before moving to Portland 23 years ago. After a brief period with an engineering company he joined the Leadbetter company and was first at Vancouver, Wash., then Salem.

Survivors include a son, F. E. Weber, Salem, six grandchildren and two great grandchildren.

RAY E. BAKER, manager of the Longview pulp mills, Pulp Division, Weyerhaeuser Timber Co., and D. J. MACLAURIN, recently made technical director, Powell River Co., are old classmates from Institute of Paper Chemistry in Wisconsin and they had a short reunion in Longview recently.

JAMES BRINKLEY, JR., whose father is a manufacturers' representative in Seattle, has joined the engineering staff of the Pulp Division, Weyerhaeuser Timber Co., and is assigned to the new mill being built at Springfield, Ore., to make kraft containerboard. He is assisting William Pittam, engineer at Springfield.



PETER J. ONKELS (left), promoted to Mill Manager, Pacific Coast Paper Mills of Washington, Bellingham, according to Pres. F. J. Herb. Mr. Onkels, an ex-Wisconsinite, was Mill Supt.

RUSSELL GRAFF (right), whose appointment as Assistant Pulp Mill Superintendent at Longview Fibre Co., Longview, Wash., was announced by R. S. Wertheimer, Vice President and Resident Manager. Mr. Graff was a contestant in the Shibley Award contest on the Coast a few years ago.



HALVAR LUNDBERG, chemical engineering consultant, Seattle, is a proud grandfather—since the birth March 30 of a daughter, Susan, to Mr. and Mrs. Duane Lind (ex-Harriet Lundberg), of that city.

W. JAMES HEUER, son of H. ROBERT HEUER, shift superintendent, Pulp Div., Weyerhaeuser Timber Co., Longview, Wash., and Mrs. Heuer, was married Mar. 19 to Patricia Lee of Yakima. Both attend the University of Washington.

FRANK BLOCH, shipping foreman for the Pacific Coast Paper Mills of Washington, in Bellingham, reports the arrival of a Valentine at his home in the person of little Frances Marie Bloch. The little girl has four brothers.

DAVID EARL McELROY, Pacific Coast manager for Lukens Steel Co. of Coatesville, Pa., and its subsidiary, Lukenweld, Inc., has moved his home and headquarters from Burlingame, Calif., to 403 North San Gabriel Blvd., San Gabriel, Calif.

DR. WALTER HOFFMAN, until recently parchment superintendent of Columbia River Paper Mills, Vancouver, Wash., has gone into business for himself at Orchards, near Vancouver, where he is owner-operator of Orchards Hardware & Lumber Co., dealing in building materials and light agricultural equipment.

WILLIAM M. CLINES, of Seattle, representative of General Chemical Division of Allied Chemical & Dye Corp., invaded San Francisco recently and battled his way to the finals of the California state squash racquets championships, finishing as runner-up to the champ.

FRANK HEDBERG, night foreman, Puget Sound Pulp and Timber Co., was seriously ill for three months with an attack of arthritis. With continued improvement, Mr. Hedberg should be back at his post in a short time.

LOUIS VAN ARSDALE, plant engineer, Rayonier, Inc., Shelton, and his wife returned from a vacation trip to California and Nevada.

PROMOTIONS AT LONGVIEW FIBRE CO., Longview, Wash.: G. L. HOLLI-MAN, formerly shift chemist, is now pulp foreman; R. E. DANA, central project engineer is now shift chemist; M. B. GRE-ENAMYER, formerly groundwood foreman, has been promoted to pulp mill tour foreman, position left vacant with resignation of STEVE MAUNUS, who left April 1, returning to farming in northern Michigan; JOHN WILL, paper inspector, control department, is now groundwood foreman.

FRANK R. PHILBROOK, assistant manager, Pacific Coast Division, Graham Paper Co., of St. Louis, with headquarters at Los Angeles, announces appointment of ROLAND WOLF as his assistant. Mr. Wolf spent eight years with California Cotton Mills, and recently was elected secretary of the Paper Mill Men's Club, Los Angeles.

JOE COURTNEY, paymaster at Crown Zellerbach Corp., West Linn, Ore., retired March 1st after having been employed there 29 years. In mid-April he and Mrs. Courtney left for a few months vacation in Ireland, the country from which each came to America. They traveled to the Atlantic coast by bus via Canada continuing by plane.

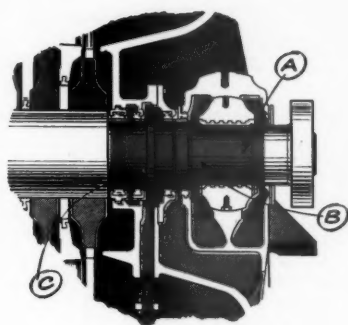
JIM BUSCHING, Iowa State graduate, formerly engineer of Pacific Paperboard Co., has joined the engineering department of the Pulp Division, Weyerhaeuser Timber Co., Longview, Wash. Another new employee at this mill is DR. JOSEPH BROWN, a former Texan and graduate of the Institute of Paper Chemistry, who has joined the technical department.

KNUTE E. BERGER, well known in the Pacific Coast pulp industry and president and general manager of Berger Engineering Co., Seattle, manufacturers of industrial and logging equipment, died March 21 while vacationing at Phoenix, Ariz.

ERIK EKHOLM, Puget Sound Pulp and Timber Co., specializes in winter vacations, spending both this year and last in Phoenix, and the winter before in Aca-pulco, Mexico.

STANDARD ENGINEER'S CASE FILE

Case 1148B—Reducing Turbine Bearing Wear

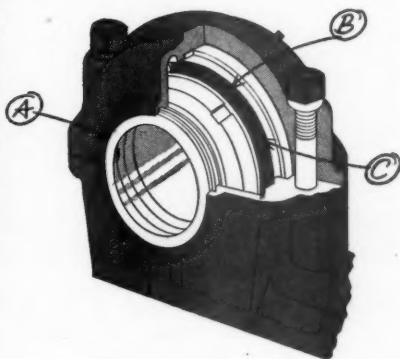


TURBINE BEARING

There was no sign of acidity or deterioration in Calol OC Turbine Oil when, after six years use in a heavily-loaded turbine, a sample was given a laboratory analysis. Bearings and other parts showed practically no wear and the entire lubrication system was clean and functioning with maximum efficiency. Recommended for all steam turbine lubrication and as the medium in hydraulic units. Comes in four grades: 9, 11, 15, 19.

- A. Has excellent metal-wetting ability — resists the heaviest bearing and gear loads and assures constant lubrication.
- B. Contains a highly effective oxidation inhibitor — prevents the formation of lacquer, gum, and sludge deposits on parts and in oil and hydraulic systems.
- C. Corrosion inhibitor stops rusting — Calol OC Turbine Oil in both salt and fresh water tests kept steel strips from rusting while they were immersed in the water-oil mixtures for 48 hours.

Case 1165—Keeping Grease in Bearings in Hot Conditions



HEAVY-DUTY ROLLER BEARING

Specialized Calol S.A. Grease did not leak from a heavily loaded industrial bearing on a factory machine when surrounding temperatures climbed to 250° F. Its heat resistance was also proved in a series of tests on the Navy Ball Bearing Machine, operated at 10,000 rpm with extremely high bearing temperatures. Adaptable to many services, but especially recommended for anti-friction bearings where radiated temperatures are high. Comes in three grades: Nos. 00, 0 and 1.

- A. Very high melting point minimizes seepage through housings and seals.
- B. Feeds evenly to all bearing surfaces.
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To give Calol S.A. Grease unusual heat-resistant qualities, it is made from selected heat-resistant oils and a special sodium-aluminum soap base.

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STANDARD TECHNICAL SERVICE will make your maintenance job easier. If you have a lubrication or fuel problem, your Standard Fuel and Lubricant Engineer or Representative will gladly give you expert help; or write Standard of California, 225 Bush St., San Francisco 20, California.

FOR EVERY NEED A **STANDARD OF CALIFORNIA** JOB-PROVED PRODUCT

May, 1949



DR. HAGGLUND'S PAPER

(Continued from page 50)

Ringstrom, Giertz, Enkvist and Moilanen, as well as for some analytical questions Johansson.

To begin with, the following results of these investigations may be cited. By cooking spruce with a solution of sodium hydro-sulfide at, for example, a temp. of 160°C, a considerable amount of sulfur is organically bound in the solid phase. The greatest amount of lignin remains in the wood. Only about one-fourth goes into solution and that in such a form that it cannot be precipitated with hydrochloric acid. I shall speak again, later, of this so-called, "water soluble" lignin. The lignin existing in the wood has been changed in composition so that it can, to a considerable extent, be brought into solution under mild conditions, for example, by cooking with 5% sodium hydroxide under atmospheric pressure, or by extraction with organic solvents, such as 75% alcohol. In the first case, lignin, precipitated with hydrochloric acid, is obtained in a yield of 10% of the wood's weight and contains 8 to 9% of organically bound sulfur. In the second case, a yield of 5% is obtained with a content of 11.9% organically bound sulfur (methoxy content 10.9%).

If one delignifies with sodium sulfide, the greatest amount of lignin goes into solution, precipitated from this solution with hydrochloric acid, has a sulfur content of only about 3%. Ahlm has also investigated this type of lignin. On the basis of methylation and acetylation, he has advanced a suggestion regarding the interpretation of thio-lignins origin, which is represented in formulae in Fig. 6. Thus thiolignin should originate by the addition of hydrogen sulfide to a carbonyl group in the lignin, whereby a mercaptan and a hydroxyl group are formed. The mercaptan

group formed should give lignin increased acid properties, and this would explain the greater alkali solubility of thio-lignin than sulfur-free lignin.

The results of the aforementioned two-step cooking procedure—sodium hydro-sulfide at 160°C and dissolution by cooking with dilute sodium hydroxide—obviously can not be explained by means of Ahlm's theory. An 8 to 12% sulfur content in thio-lignin would be equivalent to a carbonyl content, in lignin, which is considerably greater than that which can actually be shown to exist. F. S. Hansson has, like ourselves, found thio-lignin with over 10% sulfur. He also assumes, therefore, that SH groups can replace hydroxyl groups in lignin. The fact that we could not find any appreciable amount of mercaptan sulfur by titration of thio-lignin with iodine in alcohol solution, also spoke against Ahlm's theory. Now it is known, that mercaptan groups are easily dehydrogenated to disulfide groups even by air, but that these easily reform mercaptans on reduction, for example, with zinc and dilute acids. However, even after such a reduction, it has not been possible to show large amounts of disulfide sulfur in thio-lignin obtained from cooking with sodium hydro-sulfide.

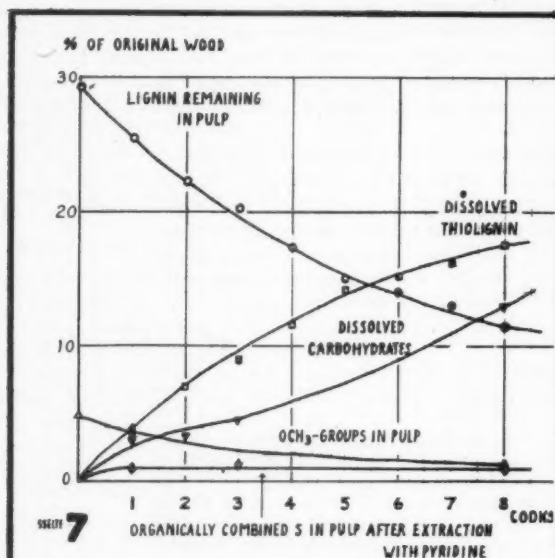
Ahlm has found that thiolignin forms precipitates with mercury acetate in glacial acetic acid solution and regards this to be a support for his opinion that thio-lignin contains mercaptan groups. It is, however, known that organic sulfides also give precipitates with mercury salts, and we have found that this also occurs in glacial acetic acid solution. We have come to the conclusion that the sulfur in the thio-lignin, in question, is mainly bound as a sulfide.

As a further contribution to our knowledge of sulfur-lignin, the following investigations may be stated.

If resin-free spruce is heated for 3 days with a buffered saturated

(Continued on page 75)

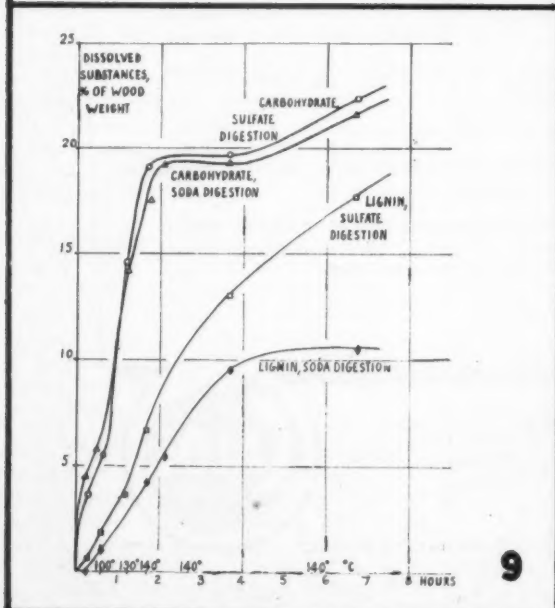
FIGURES 7 - 10



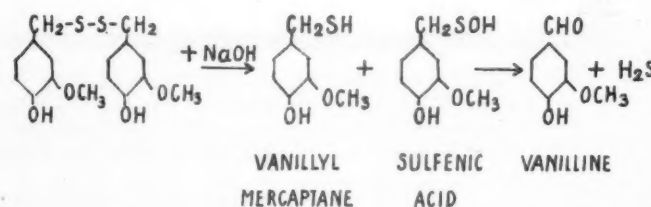
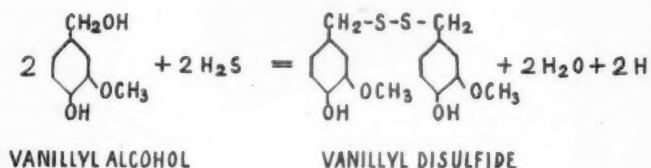
Lignin obtained by treatment with

	NaOH 160° 16 hours	NaOH 160° 3 hours		NaOH 160° 16 hours		H ₂ O ₂ 100° 72 hours			
Component soluble in	Ethanol	Ethanol	Ether	Ethanol	Dioxan	Ether	Ethanol	Ethanol	Ethanol
Sulfur con- tent in lignin, % Equival. Wt:	0	3.77	3.24	6.16	5.27	12.09	8.82	7.23	9.98
1. BaCl ₂ Method	190	223	-	238	232	281	-	347	-
2. Ethylene di- amine Method	200	-	192	260	-	-	372	-	321

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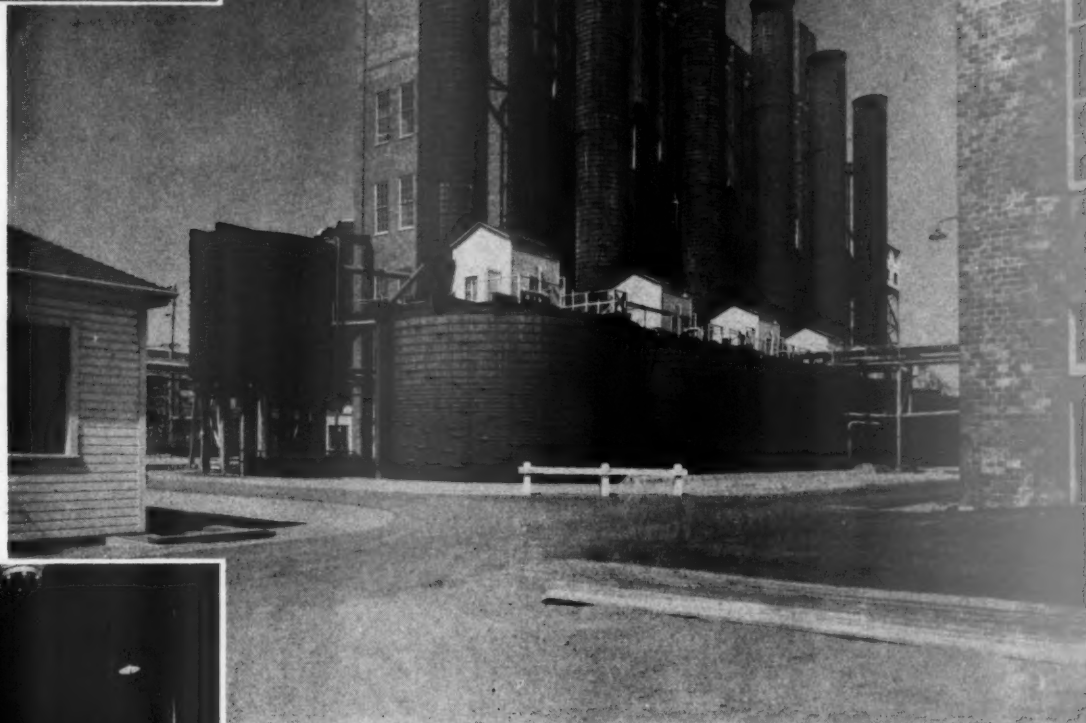


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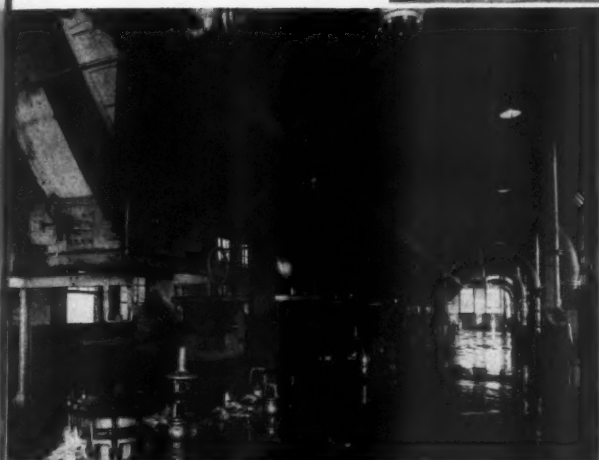
10

AIDS TO DIGESTION AT PUGET



BLOW PITS AND VOMIT STACKS IN FRONT OF THE DIGESTER BUILDING, WITH WASTE SULPHITE LIQUOR TANK SERVING THE ALCOHOL PLANT ON STILTS AT LEFT. THE DIGESTERS RUN THROUGH THIS BUILDING FOR A TOTAL HEIGHT OF MORE THAN FOUR STORIES.

Puget Pulp has six digesters, with a combined volume of 60,000 cubic feet. After digesting for a period of eight hours, the pulp goes through a series of washing, cleaning, and screening operations, to maintain Puget's standards.



Tapering shapes coming down from the ceiling are the bottoms of chip bins, from which chips are emptied into the digesters, tops of which are seen extending above the floor.

AMERICA'S LARGEST
PRODUCER OF UNBLEACHED
SULPHITE PULP

CAPACITY:
125,000 TONS ANNUALLY

**PUGET SOUND
PULP & TIMBER COMPANY**
BELLINGHAM • WASH.



Fire is Forest Enemy No. 1. In most years more trees are destroyed by fire than are harvested! And the pity of it all is that most fires are caused by human carelessness and ignorance of the far-reaching consequences. Nine out of ten fires can be traced to man. Careless smokers *alone* cause one out of four.

The men and management of Weyerhaeuser Timber Company are keenly alive to the necessity of protecting forest lands from fire. Since 1903 the Weyerhaeuser organization has been participating in cooperative fire protection efforts

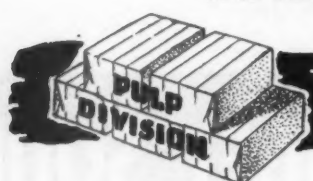
with other private forest owners and with State and Federal agencies.

Supplementing its fire protection activities, the Weyerhaeuser forestry management program also includes relentless insect and disease control throughout its extensive timber tracts and the company's eight thriving Tree Farms which are producing harvests for the future.

Furthered by this constructive forestry policy, the Pulp Division represents a reliable and continuing source of supply for consumers of bleached chemical woodpulp.

YES! GO WEST!

1949 Fall Meeting TAPPI Portland, Oregon



WEYERHAEUSER

CHEMISTRY STUDY

(Continued from page 72)

hydrogen sulfide-water solution at a pH of 7 at 100°C, the solid wood takes up 1 to 2% of sulfur. By mild warming with weak sodium hydroxide or soda solution, or simply by extraction with organic solvents, for example pyridine or also neutral solvents such as 75% alcohol or dioxan in a Soxhlet apparatus, a thio-lignin preparation is obtained which contains 12 to 18% organically combined sulfur. The yield of thio-lignin is about one-tenth of the lignin in the wood. If the residue, after extraction, is again treated with hydrogen sulfide and extracted with pyridine, about one-tenth of the wood's lignin content is again dissolved. We have continued this treatment up to 8 times. The results are shown in Fig. 7. As can be deduced, the yield of thio-lignin at each cook drops slowly to about a third of that which was obtained at the beginning of the treatment. In all, about 60% of the wood's total lignin content is dissolved in this manner. At the same time, some of the carbohydrates have also gone in solution, equivalent to about two-thirds of the amount of lignin dissolved. The proportion of dissolved lignin to dissolved carbohydrates is not constant but decreases from 2.4 to 1.3. The content of organically combined sulfur in the residue, after pyridine extraction, remains very constantly about 1% of the original wood. If one examines the sulfur content in lignin isolated from 72% sulfuric acid, a value of 4.2% is obtained. A sulfur content of this size is equivalent to about 1 sulfur atom per 40 carbon atoms. This value forms, in this and many other cases, a sort of limiting value to the possible sulfur content in undissolved thio-lignin. If the sulfur content increases essentially over 5%, the thio-lignin becomes easily soluble in alkali and organic solvents.

After the eight hydrogen sulfide cooks and pyridine extractions, the undissolved wood contains 17.1% lignin as well as 2.11% methoxy groups. The wood can not be reduced to fibers, nor is it swollen. In a microscope it has the same appearance as the unreacted wood, excepting a similarly distributed yellow brown color. In ultraviolet light, the middle lamella appears very dark due to the absorption of the lignin. In the secondary walls however, the coloration has been greatly weakened. Apparently the dissolution of lignin has not seriously affected the middle lamella.

Thio-lignin, prepared by the effect of hydrogen sulfide on resin-free spruce at 160°C and a pH of 7, is called "hydrogen sulfide lignin" in the following discussion.

We should now treat the chemical properties of the prepared thio-lignin somewhat more closely and compare them to sulfur-free alkali lignin. First we have the question of how the sulfur is combined in the sulfur rich lignin. It has been shown that no splitting off of sulfur occurs by cooking with dilute hydrochloric acid. With dilute sodium hydroxide only a small amount of hydrogen sulfide is formed. If the temp. is increased to 160°C, and maintained for 3 hours, the sulfur content, in a sample preparation, decreased from 2.45% to 4.10% with the formation of a considerable amount of hydro-sulfide in the solution. Here lies the explanation for the fact, that the sulfur content in lignin from a technical sulfate cook is as low as 2.5 to 4%.

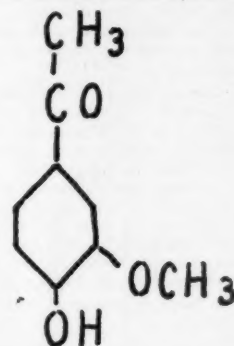
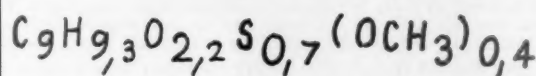
As far as solubility in alkali, as well as in sodium hydroxide, soda solution, and ammonia is concerned, thio-lignin is very similar to sulfur-free alkali lignin obtained from a soda cook. They behave as substances of a phenolic nature, but differ sharply from hydrochloric acid lignin and cuproxam-lignin, which are not soluble in sodium hydroxide except after long heating at high temperatures.

Thio-lignin is not homogeneous. By dissolving in dioxan and precipitating with alcohol or ether, the lignin can be separated into ether-soluble, alcohol soluble and dioxan-soluble thio-lignin. From the hydro-sulfide cook at 160°, a considerable amount of substances are also obtained which are soluble in sodium hydroxide at 105° but not in organic solvents. By such separations, it has been shown that sulfur-lignin is not homogeneous since its sulfur content can vary within such wide limits, for example, between 7 to 18%. It should be noticed that a sulfur content of 14.6% is equivalent to one sulfur atom per 10 carbon atoms in lignin. The very high sulfur contents are found in hydrogen sulfide lignin. It was shown by iodine titration after reduction that they contain a considerable amount of disulfide sulfur—even up to about half or more of the total amount. The rest is sulfidic. Hydrogen sulfide lignin has a high methoxy content. Some of this can be split off by means of heating to a high temp. in alkali solution. Thus, the low methoxy content of sulfur-lignin from a sulfate cook, has nothing to do with the sulfurization. It is a reaction by itself.

We have also subjected hydrogen sulfide lignin to methylation and acetylation in the same manner as Brauns and Ahlm. The most apparent difference between Brauns' "native lignin" and hydrogen sulfide lignin is, that it does not take up any methoxy groups upon treatment with methanol and hydrogen chloride, whereas "native lignin," of the molecule size Brauns has assumed, takes up 2 new methoxyl groups for every 4 already in the molecule. In his own work, Ahlm also found a decrease in the methylation tendency of sulfur-poor lignin to one-half of the value obtained from "native lignin." Thio-lignin shows, on the other hand, a high methylation tendency with diazomethane. Ahlm found, in his product, three methylatable groups with diazomethane per Brauns unit. We have found that our hydrogen sulfide lignin, in the same relation, takes up two such groups. Since thio-lignin does not contain any mercaptan groups, it consequently must contain a considerable amount of phenolic hydroxyl groups.

In the same connection, it was desirable to determine the equivalent weight of thio-lignin and to compare it with that of sulfur-free alkali lignin. It has been found possible to find this equivalent weight by potentiometric methods after dissolving the lignin in ethylene diamine. This value has been compared with the value obtained by another method, which consists of dissolving the lignin in a definite amount of 0.1 N

Figures 11 & 12



ACETOVANILLONE

FIGURE 11 (Top)

FIGURE 12 (Bottom)

sodium hydroxide. To this is added a barium chloride solution which precipitates the lignin as a salt. The amount of unreacted alkali in the filtrate is determined by titration using alfa-naphtholphthalein.

It is obvious that both methods show the equivalent weight, which, for strong alkali cooks, is about 200, which corresponds to a lignin building unit of 10 carbon atoms. Hydrogen sulfide lignin on the other hand has a somewhat higher equivalent weight. It would appear, as if under these mild conditions not all the phenolic bonds are broken.

It was also of interest to undertake a determination of molecular weight. We have utilized both Rast's well known method and a method by Hellstrom which is based on the principle of isothermal distillation. Both of these methods give consistent results. A value of about 1000 was obtained for alcohol soluble thio-lignin. A somewhat higher molecular weight has been observed with alkali lignin, between 1000 and 3000, while ether soluble hydrogen sulfide lignin, which is obtained in very small amounts, has shown a molecular weight as low as 500. In general, however, thio-lignin is to be considered as strongly polymolecular.

We have thus, by these investigations not obtained any solid basis for a belief that isolated thio-lignin should be more acid than sulfur-free alkali lignin and the difference in molecular weight, although it exists, is not large enough for one to assume, that any essential difference in the rate of diffusion should occur during the cook. The lignin obtained from the "black liquor" of both soda- and sulfitecooks shows, to a large extent, similar equivalent and molecular weights. This, nevertheless, does not mean that the lignin cannot behave differently, in the two types of cooks, during the early phases of the dissolution process. To illustrate this, I shall show some curves concerning the dissolution processes of a pure sodium hydroxide cook compared to a sulfate cook of 30% sulfidity. Both cooks were performed on spruce and both had identical alkali ratios and temperature curves. The cook was accomplished at a low temperature—namely 140°C. At different intervals the cooks were interrupted and the contents analyzed. The results are shown in Fig. 9 which shows the amount of dissolved carbohydrate and lignin in % of wood weight.

It is apparent that the amount of carbohydrate dissolved is exactly the same in both types of cooks. The dissolution of lignin in the sulfate cook proceeds relatively unhindered with only a small loss in vigor during the entire cooking time, while the pure alkali cook shows, at first, a rapid dissolution of lignin, the same as in the sulfate cook, but then a rapid decrease in vigor after about a third of the lignin has dissolved. If the temperature is decreased to 130°, the decrease in vigor occurs after only a fourth of the lignin has gone into solution. The difference in speed of dissolution can thus, in some degree, be equalized by an increase in temperature, a fact that we had discovered earlier.

It would be of value to attempt to find a lignin model upon which we might try out the effect of hydrogen sulfide and sodium sulfide. Such a model, known from the sulfite process, is vanillyl alcohol. It is to be noticed that phenol alcohols, of a similar type, are intermediate products in the synthesis of phenol-formaldehyde resins, such as bakelite—and that these phenol alcohols are known to be easily condensed by alkali to high molecular amorphous resins.

Vanillyl disulfide is obtained in a good yield by treating vanillyl alcohol

with hydrogen sulfide at a pH 7 and 100°C. See Fig. 10. It is known from earlier work (Schoberl) that many disulfides are decomposed by heating with alkali to a molecule of sulfenic acid and one molecule of mercaptan.

The sulfenic acid (in the presence of sodium hydroxide) splits off hydrogen sulfide and gives the corresponding carbonyl compound. Vanillyl-disulfide has not been examined before in this respect, but we have found that such a reaction takes place to at least 50% of the disulfide.

It is very possible that carbinol groups connected to the benzene nucleus in the lignin reacts in a similar manner. In our own work we have found that hydrogen sulfide lignin splits off about half its sulfur as hydrogen sulfide. The difference is only that this occurs at a considerably higher temperature than for vanillyl disulfide.

Our investigations of the reactions of hydrogen sulfide on lignin model substances is still being carried on. It would take too long here to go into more detail regarding them.

Our investigation of the so-called "water soluble lignin" also deserves mention. I discovered, 25 years ago, that some of the lignin in black liquor could not be precipitated by acids. This occurs in all types of an amount of about 7% of the wood weight, that is, about 25% of the amount of lignin. If one cooks with hydro sulfide at 160°, a liquor is obtained from which no lignin can be precipitated by hydrochloric acid. It is all "water soluble." Some of this "water soluble" lignin precipitates on evaporation in a hydrochloric acid solution or upon the addition of concentrated hydrochloric acid as an amorphous substance, which, after purification, contains 9.4% ash, 11.9% organically bound sulfur, and 7% methoxy groups. Elementary analysis gave the formula in Fig. 11.

Thus, the substance is poor in methoxyl and rather rich in sulfur. Its yield amounts to 4% of the wood.

Acetovanillone, and its methylation product, acetoveratrone, are obtained by the cooking with sodium hydrosulfide in a yield of about 0.9% by methylation with dimethylsulfate, ether extraction, and distillation over

a spinning band fractionally column. On the other hand, no aldehydes, such as vanillin or veratric aldehyde, are formed. In ordinary "black liquor" from sulfate mills, acetovanillone is obtained in an amount of only about 0.1% of the wood weight. No acetovanillone can be formed from the "black liquor" from pure alkali cooks. This fact shows again the special role played by the sulfide in the sulfate cook. See Fig. 12.

On the basis of our investigations, we have set up the following hypotheses for the understanding of the part played by the sulfidity in the sulfate cook.

The first step is that during the sulfate cook, the lignin takes up sulfur in the solid phase. The group in the lignin that reacts in this case, presumably, is the same as that which reacts with alcoholic hydrochloric acid. It is believed that the hydroxyl in substituted benzyl alcohol groups is replaced by a mercaptan group. This is, however, not stable in alkali solution but is converted into a sulfide group by reacting with a hydroxyl group from either the same or another molecule.

The second step, which naturally is closely connected to the first, consists of a hydrolytic splitting under the effect of alkali. In this manner free phenolic hydrolytic groups are formed, and the lignin becomes soluble in alkali. The disulfide compounds eventually split, under the influence of alkali, to the corresponding mercaptan and sulfenic acid. The hydrogen sulfide which is then split off from this acid can react again with more lignin. The mercaptan, in its turn, is converted to a sulfide by reacting with a hydroxyl group in the same or another lignin residue.

It is very probable, that the hydrolytic splitting of the phenolic groups take place much easier if the lignin has first reached with sulfur.

By means of sulfidization, a condensation sensitive group is blocked, and thus is less inclined to condense in the as yet undissolved lignin. Such a condensation is very possibly the cause for the fact that the lignin remaining in the wood in a sulfide-free alkali cook becomes more difficult to dissolve and thus makes the dissolution of lignin, in general, much slower.

PASC Meets

Paper Makers & Associates of Southern California met at Ivan's Cafe, Lynwood, Calif., Mar. 17, with 65 members and guests present. Bruce Brown, Jr., chemist at Fibreboard Products, Inc., was chairman, assisted by John Doering, secretary.

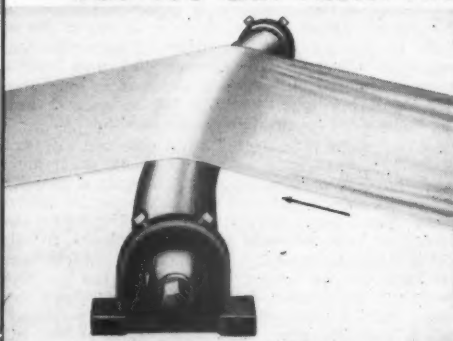
Final papers for the annual George M.

Cunningham Award were handed in and the award will be made at the May meeting. Robert A. Lees, American Anode, Inc., discussed "Latex Compounds for the Paper Industry." This was followed by a technicolor film by Westinghouse Electric Corp., "Industrial Plant Power Distribution Systems."

EDMUND PFEIFER, member of Coatesville, Pa., district sales staff of Lukens Steel Co., is now assistant district manager of sales of the Boston office, and will assist H. G. Austin, manager of sales in Boston.

MR. PAPER MAKER:

YOU TOO CAN PROFIT FROM WRINKLE-FREE — TROUBLE-FREE OPERATION



with...

**Mount
Hope**



FREE WHEELING EXPANDERS!

More and more paper makers are becoming aware of the outstanding advantages of the Mount Hope Free Wheeling Expander.

1. Eliminates wrinkles and creases.
2. Maintains maximum width of paper.
3. Assures trouble-free operation — the free turning roll prevents paper spoilage and eliminates costly waste.
4. All ball bearing mounted neoprene sleeve.

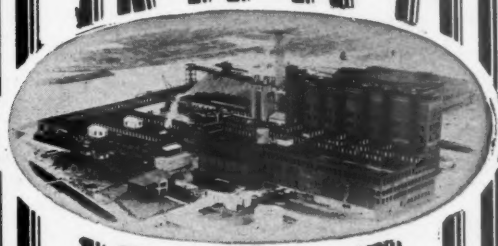


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MOUNT HOPE MACHINERY COMPANY, 42 Adams St., Taunton, Mass., U. S. A.

MOUNT HOPE FREE WHEELING EXPANDER

SOUNDVIEW



High Grade

BLEACHED SULPHITE PULP

YES! GO WEST!
1949 Fall Meeting TAPPI
Portland, Oregon

SOUNDVIEW PULP COMPANY
EVERETT WASHINGTON



Personals



C. D. HUMPHREY, Assistant Manager, B. C. Pulp & Paper Co., Vancouver, B. C., with the trophy won by company's Port Alice mill for best safety record in British Columbia last year. The mill's Safety Director is E. Tucker.

J. W. WING, assistant general manager, Gaspesia Sulfito Co., Chandler, Que., has announced appointment of K. McCONOMY as mill manager. He was recently electrical superintendent for Anglo-Canadian Pulp & Paper Mills.

ROBERT J. FILBERG, vice president of Canadian Western Lumber Co., accompanied by F. D. MULHOLLAND, chief forester for that company, visited Sweden in April to study pulpwood collection methods. Canadian Western plans to build a pulp and paper mill at Duncan Bay, Vancouver Island.

F. H. CAMP has been appointed master mechanic of Pacific Mills, Ltd., in Ocean Falls, B. C. He was formerly construction superintendent with Champion Paper & Fiber Co., in North Carolina for 13 years and in the mechanical department.

W. G. REEKIE, chief engineer of Abitibi Power & Paper Co., has returned to Toronto head office after serving as project engineer of the company's new groundwood mill at Iroquois Falls.

DAVID McBAIN has been appointed superintendent of the finishing room, Powell River Co., succeeding the late Norman C. Fraser. Scottish-born, he joined the company in 1922.

W. E. MacGILLIVRAY, general superintendent of pulp mills, Powell River Co., addressed superintendents and foremen of all the company's logging subsidiaries in Powell River recently on the effect of log quality on pulp production.



STEBBINS Semtile tanks are constructed of cored Semtile with steel reinforcement, both vertically and horizontally. The cores are solidly filled with concrete so that the resulting structure is a reinforced concrete wall, faced on both sides with a corrosion resistant vitrified glazed tile. There are no through joints in a Semtile tank, either horizontally or vertically.

Yes! Go West! 1949 Fall Meeting TAPPI, Portland, Oregon



Stebbins Engineering Corporation

TEXTILE TOWER

SEATTLE 1, WASHINGTON

P. M. FOX, formerly vice president of two Canadian firms, St. Lawrence Paper Mills Co. and the Lake St. John Power and Paper Co., has been elevated to the presidency. J. I. RANKIN has been named chairman of the board for both companies as well as president of the St. Lawrence Corp. A. KIRK CAMERON, who resigned as president and chairman of the board, continues as director of the three companies.

C. H. KLOTZ, project engineer for Celanese Corp. of America in charge of Columbia Cellulose Co.'s pulp mill construction at Port Edward, B. C., was guest of honor at a recent meeting of the Prince Rupert Gyro Club.

H. A. WICKETT, shift supervisor for the KVP Co. at Espanola, Ont., has accepted a similar position with the Weyerhaeuser Timber Co.'s pulp mill at Longview, Wash.

D. H. BAKER, associated with Howard A. Simons, consulting engineer who is designing the bleached sulfate pulp mill of Nanaimo Sulfate Pulp, Ltd., Nanaimo, B. C., has been visiting Sweden, gathering technical data.

H. WYATT JOHNSTON, Montreal manager for Sutherland Refiner Co., has been appointed a vice president of the company, in charge of Canadian operations.

W. J. WINDEBANK and H. C. LEE, of the technical staff, International Paper Co., Dalhousie, N. B., have been appointed to CIP's head office in Montreal.

The Semtile salt-glazed cored tile presents a smooth, easy to clean surface which is impervious to the corrosive action of stock slurries.

At the price of materials today, a Semtile tank costs no more than a concrete, lined steel, wood or ordinary tile tank.

They pay dividends year after year through dependable service.

Woodfibre Mill Wins First Aid Competition

First industry-wide first aid competitions were held in British Columbia this year, and the gold trophy for most efficient team was won by the B. C. Pulp & Paper Co.'s Woodfibre mill.

Personnel of the team comprised John Guthrie, captain; J. Stevens, V. Bidin, H. Lynch and J. Wood. In second place was Sidney Roofing & Paper Co., Victoria.

Judges were Dr. Ian Balmer and W. M. Allison. Awards were presented at a banquet presided over by Paul E. Cooper, president of Pacific Mills, and chairman of CPPA western branch.

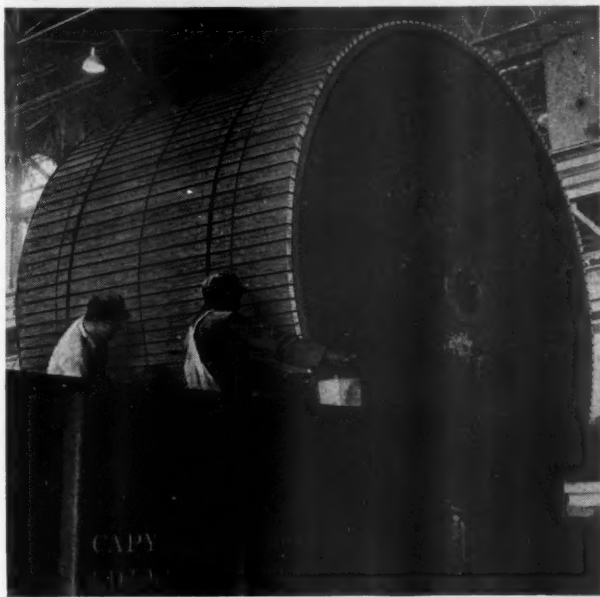
Trophy for the pulp and paper mill with the best safety record for the year was won by the Port Alice mill of B. C. Pulp & Paper Co. for the second year. Converter plant with best record was Davies Paper Box, Ltd., Vancouver.

ROBERT J. FILBERG, vice president, and F. D. MULHOLLAND, chief forester, Canadian Western Timber Co., planning a pulp and paper mill at Duncan Bay, Vancouver Island, were expected back from Sweden, where they have been studying forest methods, late in April.

R. O. SWEEZEY, Montreal financier who is promoting a pulp mill project in Alberta, visited Edmonton recently and announced that that city would be the location for his proposed \$14,000,000 plant.

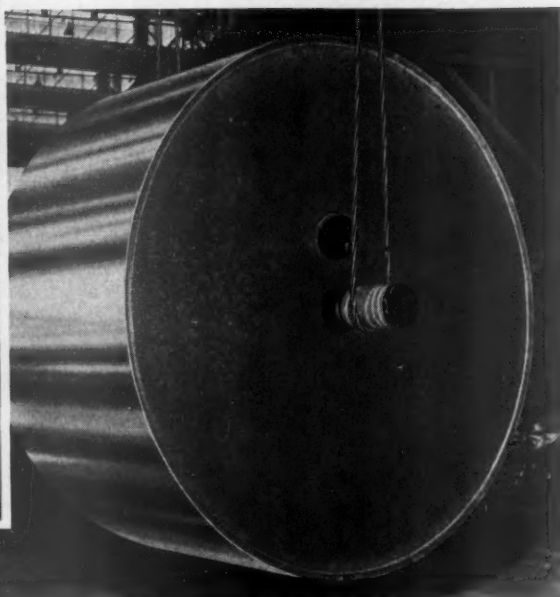
M. J. FOLEY, executive vice president, Powell River Co., and WILLIAM BARCLAY, vice president, Powell River Sales Co., were among the west coast pulp and paper executives who attended the FAO Conference in Montreal.

Another LUKENWELD Drier Roll ON ITS WAY TO CHAMPION...



The seventh Lukenweld Drier Roll to go into this important service at Champion Paper and Fibre Company; shipped November, 1948. It is 12 feet in diameter, with an 8'4" face.

The first of these Lukenweld Drier Rolls was shipped to Champion, 12 years ago.



for a further boost in Kromekote[®] production

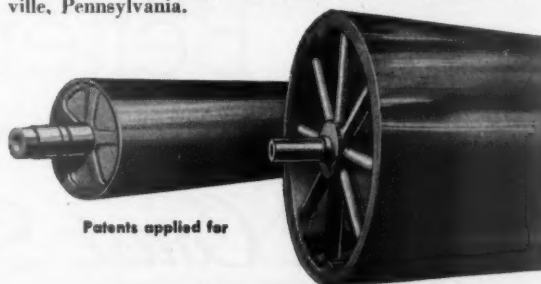
Kromekote's superb printing properties depend upon the uniformity and perfection of this paper's coating. A Lukenweld Drier Roll helped Champion develop the revolutionary methods which gave Kromekote those properties way back in 1937. Six additional Lukenweld Drier Rolls have since been added to take care of the ever-increasing demand.

Repeat orders received regularly from the various industries in which Lukenweld Drier Rolls are working—paper, chemical, drug, food, plastic and other industries—are evidence of their worth. Their welded steel plate construction is strong and dependable; high pressures are employed with safety. Simple in construction, there's nothing to get out of order.

Where Lukenweld Drier Rolls have replaced other rolls, production increases of 18% to 35% have been reported. This is accounted for by the positive removal of condensate and higher steam velocities obtained. Heat is transferred to roll faces rapidly and uniformly.

If you have a drying problem . . . In addition to supplying the drier rolls, Lukenweld will design, build and install the complete drying machine. Our engineers can help you speed up production, cut costs and improve products.

For a copy of Bulletin 358 on Lukenweld Drier Rolls or for other drying help, write Lukenweld, Division of Lukens Steel Company, 444 Lukens Building, Coatesville, Pennsylvania.



Patents applied for

*T. M. Reg. U. S. Pat. Off. for Champion's Cast Coated Paper



DESIGNERS, ENGINEERS AND MANUFACTURERS OF MACHINERY

May, 1949

79

Cut Sizing Costs

By Preparing Tub Sizings and Coatings from Raw Starch with

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AMYLIQ-Converted Starch Costs Less Than Modified Starch
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ROBERT'S BURRS

INSURE

Lower Stone Costs
Better Pulp



Pacific Coast Supply Company
PORTLAND, OREGON • SAN FRANCISCO, CALIFORNIA

YES! GO WEST! 1949 Fall Meeting TAPPI, Portland, Oregon

Opposes Postal Rate Boost

Cola G. Parker, president of Kimberly-Clark Corp. and president of the American Paper and Pulp Association, appearing before a U.S. Senate Committee in opposition to the proposed increases in postal rates March 23, warned against the potential effects upon the economy of the pulp and paper industry, possibly even causing shut-downs of mills.

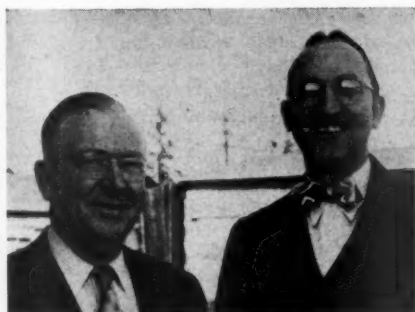
"Some 600,000 tons of publication paper are required annually for the printing of magazines that are sold on a subscription basis; in other words, magazines that pass through the U. S. mails" he said. "The production of this paper involves operations reaching out to the cutting of pulpwood long distances from the mills. A considerable proportion is purchased from farmers and small operators; frequently a company will have a thousand or more suppliers. The loss of a market for over 1,000,000 cords of pulpwood, which is involved in this consideration, would have a serious effect.

"Within the economy of the paper industry, the manufacture of 600,000 tons of publication paper involves the use of about 25,320,000 man hours of labor and an estimated \$33,000,000 in annual wages. These are serious considerations to many communities and to large areas.

"The mills making these grades of paper are in 46 communities; 30 of these communities are 50% or more dependent upon the mills for their existence," continued Mr. Parker. "It is estimated that \$136,000,000 in capital is employed in the production.

"Assuming that 1948 production was at practically 100%, if this publishing paper were to be eliminated, the book and groundwood paper industries could operate only 80% of capacity.

"This reduction would not be evenly distributed. It is highly probable that many mills would be forced to close entirely. With respect to community dependency, even a temporary shut-down would have serious consequences. A shift to other markets would take considerable time and would have a disruptive effect."



ED GARRISON (left), Pacific Northwest representative for American Cyanamid Co., and GEORGE E. FROMM, Supervisor for all sizing chemicals, Paper Chemicals Dept., Industrial Chemicals Division of the company in New York. This picture by PULP & PAPER was taken shortly before the pair went salmon fishing in Puget Sound in between calls on paper mills. Mr. Fromm is a native of Chillicothe, O., began his career in the Mead mill there, where his father also worked, and he is an Ohio State U. Graduate.

L. A. RAMAKER, The Bower Paper Co., Milwaukee, was elected president of the National Paper Trade Association at its recent New York convention.

JOHN W. HUMPHREY, former executive vice president, was elected president recently of The Philip Carey Mfg. Co., Cincinnati. ROBERT S. KING, former president, was elected chairman.

Pulpmen's Golf June 7

The annual tournament of the New York Pulpmen's Golf Association will be held Tuesday, June 7, at the Knollwood Country Club, White Plains, N. Y., according to the officers: William H. Flohr, president; Donald Fraser, vice president; and Seymour Hollister, secretary-treasurer. Those wishing to make reservations should write to Mr. Hollister, Room 940, 230 Park Ave., New York City, or telephone him at Murray Hill 6-7200.

Herman Hansen Dies

Herman L. Hansen, resident manager of the Anacortes, Wash., sulfite pulp mill of Coos Bay Pulp Corp., subsidiary of Scott Paper Co., died suddenly of cerebral hemorrhage on April 11 at Anacortes. He was one of the comparatively younger mill executives in the West and had been with Scott a number of years.

Province to Take Over Mill

In order to facilitate the reopening of the Chicoutimi mills of Quebec Pulp & Paper Co., long idle, the Quebec government has introduced legislation to acquire the property. There are said to be some fine free-hold timber limits in the company's assets, which will revert to the Crown. Following their acquisition by the government arrangements will be made for their disposal to private interests.



If you bet on the horses, the odds are against you. Be sure the odds are with you. Buy The DRAPER FELT.

The
DRAPER
Felt

DRAPER BROTHERS COMPANY

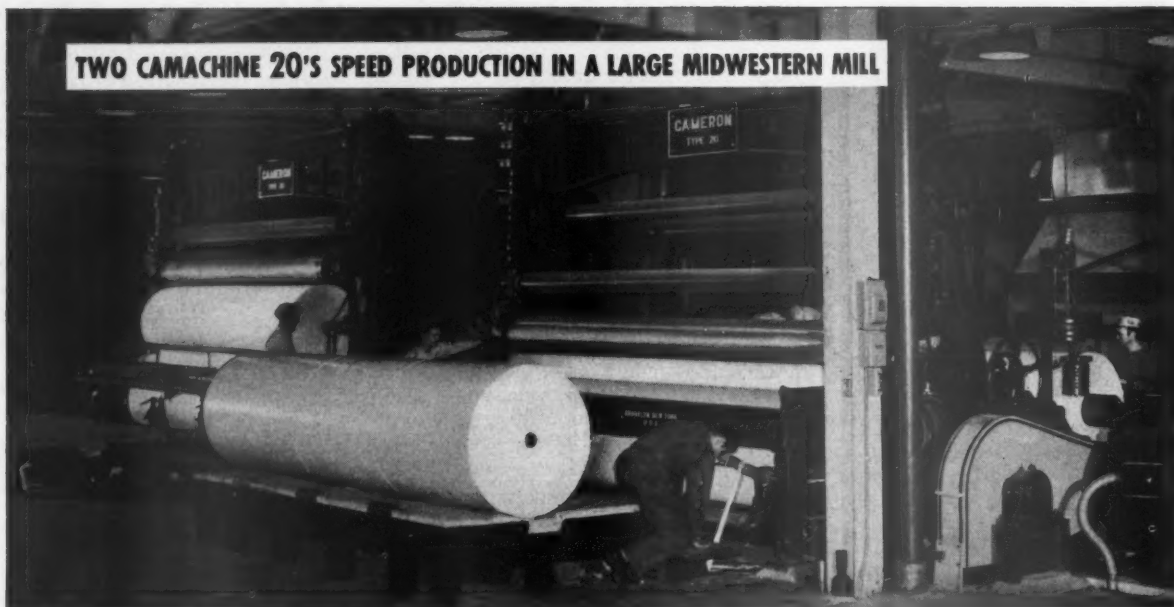
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TWO CAMACHINE 20'S SPEED PRODUCTION IN A LARGE MIDWESTERN MILL



EXCLUSIVE new Camachine mill winder features include: pneumatic brake on drive and idler roll; motor-driven riding-roll lift and roll ejector; pneumatically controlled pressure on cutter units.

Write for complete information.

Cameron Machine Company, 61 Poplar Street, Brooklyn 2, N. Y.

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Camachines
FOR FAST, TOP QUALITY ROLL PRODUCTION
... *the world over*

QUALITY-MADE BY WITCO
to help make better paper products

**—LAMINATING
ASPHALTS**

Witco Laminating Asphalts are quality-controlled to help form a strong adhesive bond between lamina of paper and other materials—producing an excellent water and moisture vapor barrier.

Other basic Witco materials for the paper industry are listed here. Complete information—and samples of all Witco products are yours for the asking.

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PULP & PAPER

FIBREBOARD MILL AWARD

Employees of the Southgate (Los Angeles) division of Fibreboard Products, Inc., were awarded the National Safety Council's Distinguished Service to Safety Award consisting of a plaque and safety banner on March 17 for a record of more than 19 months without a lost time accident, covering 650,000 man-hours.

The presentation was by Col. F. C. Lynch, of the National Safety Council. Plaque and banner were accepted by the mill manager, Oscar Hallburn. Earle White, an employee of long standing, has served as head of mill union Safety committee and F. W. Hill is plant superintendent and safety director.

Present to witness the award were R. E. Bundy, general operating manager, and C. W. King, director of industrial and public relations, both from San Francisco, and Harvey Brown, resident manager, Frank Wheelock, assistant resident manager, and Gene Ridings, personnel manager, from the nearby Fibreboard mill in Vernon, Calif.

Another Western Pulp and News Mill?

Reports that the Bowater interests or some other group plan to establish a pulp mill near Quesnel, B. C., were received a few days ago with the announcement of Premier Byron I. Johnson in the British Columbia legislature that his government plans to extend the Pacific Great Eastern Railway from Quesnel north to Prince George and build a highway from Squamish south to Vancouver.

These extensions—which would link the provincially-owned railroad to major markets in the south and to the trans-continental Canadian National Railway system in the north—are tied in with government construction of a \$5,000,000 power plant at Quesnel to serve present and potential industrial requirements.

Premier Johnson said the new hydro development at Quesnel is in advance of present power needs, but that nine billion feet of pulp timber in the area are available for establishment of a pulp mill and that "the government will press strongly for the undertaking." Forest Minister E. T. Kenney previously stated that negotiations were under way for establishment of two or three new pulp and paper plants in the interior of British Columbia.

Those who have studied the situation believe the best prospect of success at Quesnel would lie in operation of a specialty pulp mill using the area's spruce resources as raw material. They claim several factors rule out likelihood of a newsprint operation.

May, 1949

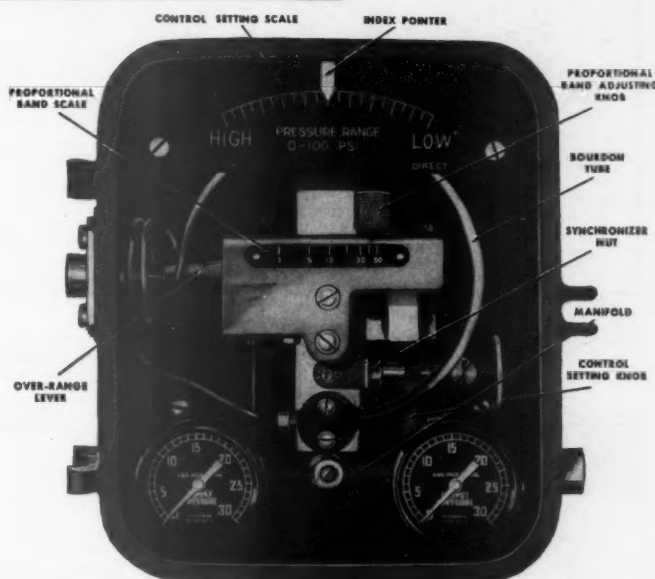
Here's the Pressure Controller You've Been Waiting for...

The Masoneilan No. 2700

- Liberal Use of Corrosion Resistant Materials
- Easy and Readily Accessible Adjustments

Look at these Features

1. Pneumatic proportionality accomplished with feed-back bellows and cantilever leaf spring.
2. Direct nozzle and flapper pilot with metering restriction.
3. Large powerful bourdon tube for greater response and control performance.
4. Wide selection of pressure ranges.
5. Cases for valve or wall mounting; also flush panel mounting.
6. Ease and accessibility of adjustments.
7. When steel construction is specified, controlled pressure connection, tubing to bourdon tube and entire bourdon tube assembly, are supplied with Type 316 Stainless Steel, in order to avoid corrosive effects.
8. Unit construction (proportional mechanism, nozzle block, etc.) and manifold.
9. Control action reversible with either bourdon or bellows.
10. Manifold construction prevents transmission of any possible case distortion to control mechanism.
11. Set point indication.



These controllers are designed for many industrial applications requiring accurate control where more expensive instruments are not warranted.

Applications include, among many others, pump governors, steam pressure reducing stations, gas well pressure reduction, etc., requiring small to intermediate proportional band.

The case is rugged and suitable for outdoor service; it is so designed that it may be mounted on the valve (on integral pad or by means of a U-clamp) or, if the occasion arises, it may be removed from the valve and mounted on a wall. A flush type case is also available for panel mounting.

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GRIFFITH RUBBER MILLS

— SINCE 1911 —



Final inspection of GRM rubber covered stock washer with 999 separate surfaces engineered by Lamb-Grays Harbor Co.

"YES! GO WEST" — Attend the "1949" Fall Meeting of TAPPI to be held in Portland, Oregon, September 12-15.

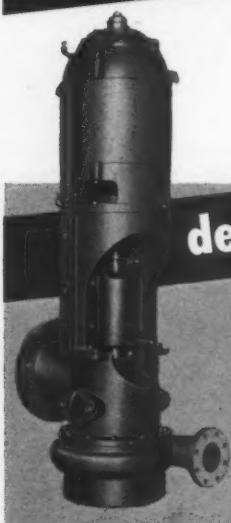


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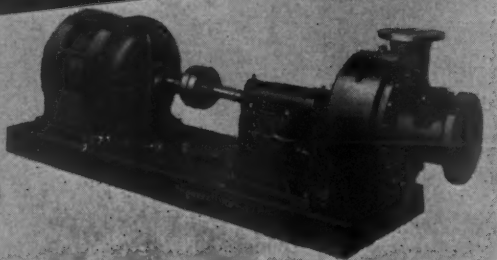
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The ability of Ingersoll-Rand pumps to handle the many stock-moving jobs in paper mills has been thoroughly proven...in actual service. They're tough — they stay on the job — and with a minimum of maintenance.

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Let an I-R engineer tell you about the features of these vertical and horizontal stock pumps. Ask for your copy of Bulletin 7022 describing the complete line of I-R pumps for pulp and paper mills.

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406-10

Pioneer Rubber Mills Holds Sales Conference

Experiences in selection and use of mechanical rubber goods in industry were interchanged by district sales managers of Pioneer Rubber Mills in a recent conference in San Francisco headed by S. M. "Joe" Suhr, Pioneer's vice president in charge of sales. Other executives attending were H. R. Mansfield, president; W. S. Towne, director; R. F. Hotle, secretary-treasurer; F. W. Swain, vice president in charge of production.

Discussions were conducted by Phil Fennelly (Pacific Northwest), Jerry Hillebrand (St. Louis), Frank Tucker (Chicago), Harry Jackson (Los Angeles), Walter C. Burns, Harold Kirkland, Frank Gatto, and M. L. Van Scoten (San Francisco), and M. E. Wank, of Wank and Wank, advertising agency.

A trip to Pioneer's factory in Pittsburg, Calif., revealed development of new rubber compounds and production methods.

Chlorine Safety Chart

An 18 x 23 wall chart, "Recommendations for Safety in Use and Handling of Liquid Chlorine Cylinders and Ton Containers" has been prepared by the Hooker Electrochemical Co. Copies are available on request from Hooker Electrochemical Co., Niagara Falls, N. Y., and Tacoma, Wash.

Black-Clawson Bulletin

Recently published by Black-Clawson Co. is bulletin No. 100-S describing Miami Electrifier Screen, a machine for installation just ahead of the paper machine headbox, for removing cellophane, rubber bands, pins, scale, and other foreign material from paper stock.

Also available are bulletin No. 4-SB describing Dilts-Cowles Classifier which can be installed early in the stock preparation process to remove cellophane, cork, wet-strength paper, and fiber bundles, and bulletin No. 95-S describing Shartle Junk Remover.

Copies of these bulletins are available from Shartle Bros. Machine Co., Middletown, Ohio.

Nalco Oil Treatment

National Aluminate Corp., 6213 W. 66th Place, Chicago 38, Ill., has announced availability of a new fuel-oil treatment to save time and fuel in boiler furnaces. The product, called Nalco SR-155, prevents sludge formation in storage tanks, eliminates fouling of fuel-oil preheaters, stops gumming at burner tips, and removes soot in the combustion chamber and flues. Full information on request.

"First Aid" on Corrosion

To help industrial designers, engineers, and buyers cut the cost of important machine components and accessories, about 200 standard products for corrosive and high temperature service are listed in a new catalogue by International Nickel Co., Inc. Checked by manufacturers of each item, this new catalogue is the first complete compilation of products made of Monel, Nickel or Inconel and available economically from stock or from standard designs.

Paper & Ind. Appliances Adds Rotabelt Suction Unit

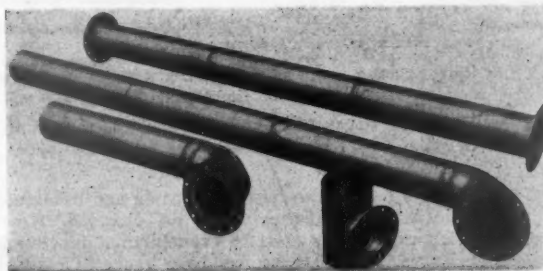
Increasing demand by the U. S. paper mills for the Evans' Rotabelt Suction Unit has resulted in the appointment of Paper and Industrial Appliances, Inc., as exclusive sales representatives in the United States and Canada. This unit was developed in 1933 by W. P. Evans, at the request of several mills in Great Britain to reduce wire wear caused by existing suction boxes, and also to provide increased water removal.

BROWN-HUTCHINSON PREFABRICATES **PROTECTION**

AGAINST

Costly Recurring Replacements
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Structural Failures
Galvanic Action When Near Copper and Brass

Typical Prefabricated Units of pipe made of 14 gauge, No. 35 Satin finish Monel. Flanges are 1/4" Monel.



B-H ALLOY LINES ARE MONEY MAKERS

Because

Prefabricated, lightweight sections result in lower installation costs.

Alloy lines last longer and require less maintenance. Alloy provides freedom against contamination and discoloration of your products.

Alloy gives full corrosion resistance to chemicals and waters.

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Huyck Expansion At Rensselaer Plant

The branch plant opened at Ticonderoga, N. Y. by F. C. Huyck & Sons, Rensselaer, N. Y., in 1946 to take care of excess production requirements in yarn rewinding and mending and joining of papermakers' felts, will discontinue operations about June 30. Provision for extra production in a construction and modernization program at Rensselaer will be completed this summer.

U. P.'s New President

From a 25-cent-a-day water boy at the age of 12 in Texas to president of Union Pacific Railroad is the capsule career story of 53-year-old Arthur E. Stoddard, recent successor in that position to George F. Ashby, retired.

Oakland Plant to Move

The Oakland Division, Zellerbach Paper Co., will shortly move into the Emeryville, Calif., plant vacated by the Western Waxed Paper Co., division of Crown Zellerbach.

Reed Elected to Board of Rayonier



William G. Reed (left) president of Simpson Logging Co., one of the biggest and oldest diverse timber products companies in the West, was elected a director of Rayonier Incorporated recently, it is announced by Edward Bartsch, Rayonier's president.

Mr. Bartsch said the company's directorate is greatly strengthened by the election of Mr. Reed because of his years of experience in the Northwest logging and lumber business. The Simpson Logging Co. was founded in 1895 by Mr. Reed's grandfather and has been operated under the direction of members of the Reed family since that time.

Mr. Reed also is a director of Pacific Car and Foundry Co., internationally known manufacturers of logging equipment, of Renton, Wash., and of the Seattle-First National Bank, and has interests in a number of other business activities in the Northwest.

Less than three years ago Simpson Logging Co. started up a new Wood Fiber Division with a coated insulating board product at Shelton. It has vast timber holdings on the Olympic peninsula and also in California and operates 3 sawmills and 2 plywood plants.

Baker Appointed Manager of Mill Section for Westinghouse

The appointment of V. B. Baker as manager of the general mill section of the industry engineering department, Westinghouse Electric Corp., East Pittsburgh Works, was announced recently by A. C. Monteith, vice president in charge of engineering. Mr. Baker succeeds J. C. Fink who was recently made manager of the industry engineering department.

O. B. WILSON, eastern regional sales manager for Brown Instruments division of Minneapolis-Honeywell Regulator Co., has been named manager of sales for the east, southeast and central regions, it was announced by L. Morton Morley, Brown's vice president and general sales manager. Mr. Wilson will supervise sales from Florida and the Gulf of Mexico to the Canadian border. His headquarters are at the Brown plant in Philadelphia.



Through the years mill experience has proven that the Morden "Stock-Maker" excels for fiber beating.

Each year gives additional evidence of its versatile and efficient beating and refining treatment in many types of pulp and grades of paper.

For the last twelve years the basic and outstanding principles of Morden treatment have not changed. However, we are constantly on the alert to even further improve its mechanical features. For instance, we have recently made improvements such as:

1. Adding a lantern ring in the packing gland.
2. Providing a copious oil reservoir by enclosing both the thrust and radial bearing in a one-piece cartridge.
3. Adding an integral coupling guard.
4. Adding a generous clean out sump for tramp metal.
5. Adding a plate with all basic operation and maintenance instructions directly on the machine housing.

Let us explain "What's New" in Morden uses and how the "Stock-Maker" can further improve your beating and refining operation.

MORDEN MACHINES COMPANY
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in Canada

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An example of Proven Design

BROWNING
LOCOMOTIVE, WAGON,
TRUCK and TU-CONTROL *Cranes*

BROWNING Diesel Locomotive Cranes are designed for car switching. Jar a string of standing gondolas with your Browning. The shock slips through all the gears and vanishes in the multiple disc clutch. No gears need resist the effect of shock—it passes through them.

You find *Proven Design* in Browning Diesel Locomotive Cranes, Heavy Duty Truck Cranes, Rubber Mounted Wagon Cranes, Crawler Cranes and Shovels. Write for literature.

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PACIFIC COAST LUMBER
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EVEREST SPEECH

(Continued from page 27)

want to analyze the real rate or trend of increase, you should eliminate the four years 1942 to 1945, during which all new uses and extended old uses were under strict controls. Within three years following lifting of controls consumption has stepped up from 19.7 million tons in 1945 to 26.1 million tons in 1948.

"With labor making up practically 70% or more of the cost of all goods and with much of the balance of cost fixed either by law or some natural law, there is not going to be any precipitate drop in the price of goods. You know cost of labor is not going down in the foreseeable future.

"Nearly everyone who talks about in-

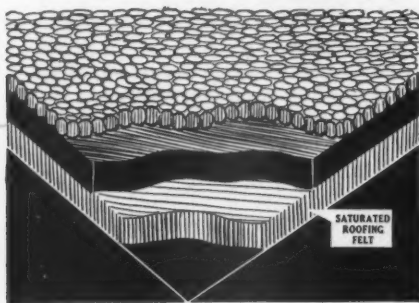
ventories thinks only in terms of dollars and not in units or in days' operations. People who make these comparisons overestimate the effect of inventory liquidation. It simply means that the cycles between buying and not buying are shortened.

"The Association of National Advertisers survey dated Mar. 18, 1949, shows that on business volume today compared with 1948, 22 companies doing a business of less than \$50 million annually report that 14% are better, 50% equal, and 38% less. In 32 companies doing a business of over \$50 million annually, 44% are better, 38% equal, and 18% less. On expected sales volume, for the year of 1949 versus 1948, the 22 companies doing business of less than \$50 million estimate an increase

of 18%, equal performance 50% (less 32%). In 31 companies doing in excess of \$50 million estimates are—up 45%, equal 42%, less 13%."



PALMER J. LATHROP (left), has recently been appointed Executive Vice President of Cameron Machine Co., Brooklyn, N. Y. He has been associated with Cameron since Sept., 1948, and was formerly a vice president with Bristol-Meyers Co. JAMES D. BROWN (right), has joined Sutherland Refiner Corp., Trenton, N. J., as Sales Engineer. He has been in the industry for 22 years, having served eight years as groundwood superintendent of large I.P. newsprint mill at Three Rivers, Que.



Saturating felts . . .

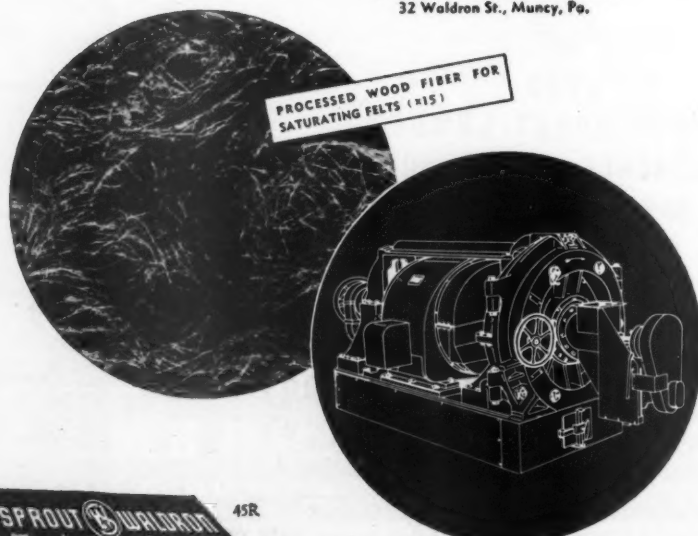
with
high
wood-pulp
additions.

Because of lower manufacturing costs, modern dry felt producers are looking to wood pulp as a partial replacement for rags in the furnish. On this service, Sprout-Waldron Refiners are the natural complement to the preliminary attrition of the heat and chemically softened wood chips. They assure high tonnages and discharge the pulp as slender fibers without degradation.

In felt production, S-W Refining improves quality and uniformity of saturation. Excellent folding properties are maintained.

Let us consult with you on your problem.

SPROUT-WALDRON & CO.
32 Waldron St., Muncy, Pa.



DON W. CURTIS (left) former Paper Mill Superintendent, with considerable experience in development and operation of high speed tissue machines in Northeast and California, has joined Beloit Iron Works, Beloit, Wis., as an engineer. He was formerly at Scott Paper Co. mills in Chester, Pa., and Fort Edwards, N. Y., at latter during postwar expansion, and in past year was at Fernstrom Paper Mills.

OLLIE W. MESSNER (right) formerly Paper Mill Supt. at Lowe Paper Co., Ridgefield, N. J., has been appointed Production Mgr. of Tarentum Products Corp., 120 tons per day kraft board and wrap mill at Tarentum, Pa., near Pittsburgh. The mill operates one Fourdrinier and one cylinder machine. Mr. Messner is National President of the Supts. Assn.

Inco Clinic To Be Held at Powell River

A welding clinic and fabrication demonstration in the use of high nickel and stainless steel was to be held at Powell River, B. C., April 20, with Harvey Roe and A. S. Tuttle of International Nickel Co. in charge.

In addition to technical men representing the pulp and paper industry, several members of the American Society for Metals, Vancouver chapter, planned to attend.

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THERE IS A BETTER WAY TO GRIND PRESS ROLLS

When a felt passes through the nip it adjusts itself to every curve and irregularity in the press rolls. If the rolls are uneven, the pressure will be uneven, too; more water will be squeezed from the high places than from the low places; felt life will be shortened and drying time will be increased.

Hamilton Felts will not grind your rolls for you, but, from the thinnest tissue to the heaviest board, there is a Hamilton Felt that will dry your sheets better, faster and at lower cost.

SHULER & BENNINGHOFFEN

HAMILTON, OHIO

Miami Woolen Mills, Established 1858

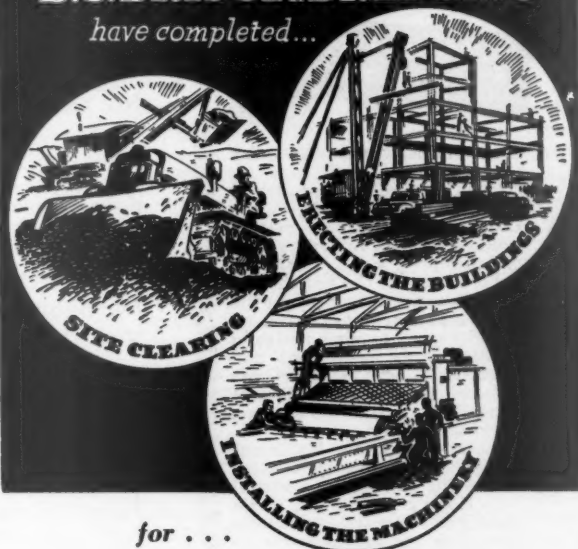
Hamilton *Felts*

Yes! Go West! 1949 Fall Meeting TAPPI,
Portland, Oregon

May, 1949

CONTRACTORS to the PULP AND PAPER INDUSTRY

B.C. BRIDGE & DREDGING
have completed...



for . . .

POWELL RIVER DEVELOPMENT PROGRAM

BLOEDEL, STEWART & WELCH, LTD.'s
Sulphate Pulp Mill at Alberni

are completing

H. R. MacMILLAN EXPORT CO., LTD.'s
Sulphate Pulp Mill at Nanaimo

and are preparing the site for

COLUMBIA CELLULOSE CO.

For faster . . . more efficient . . . more economical
work on your pulp or paper mill.

BRITISH COLUMBIA BRIDGE & DREDGING CO. LTD.

544 HOWE STREET VANCOUVER B.C.

India's first newsprint mill is being built with

Ebasco Teamwork!

EBASCO EXPERTS ARE ON THE JOB

Under normal conditions, building a newsprint mill from inception to operation (in a limited time) is a complex undertaking. Imagine then, the problems you would encounter in building the first newsprint mill in India!

For instance: the hot climate—necessary water supply for the mill—transportation—supply and storage of bamboo and salai—selection of equipment and machines. All are problems that demand careful analysis and solution by a team of experts, working together.

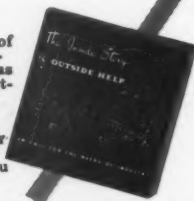
That's why the National Newsprint & Paper Mills, Ltd. turned the job over to Ebasco.

In Ebasco you have a single organization equipped with the specialists and experience to do the whole job—including design and construction, purchasing, inspection and expediting of materials and equipment, putting the mill into operation.

WHAT'S YOUR MILL PROBLEM?

Expansion? Modernization? Building an entirely new plant? Call on Ebasco. You'll find its team of seasoned consultants, engineers and constructors will get your job done quickly and efficiently.

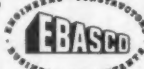
If you'd like a complete outline of Ebasco's individualized services as engineers, constructors, and business consultants, write for our booklet **THE INSIDE STORY OF OUTSIDE HELP**. We'll send it to you promptly.



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Design & Construction • Financial • Industrial Relations
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Systems & Methods • Taxes • Traffic

ENGINEER WANTED

Experienced Kraft Pulp and Paper Mill Engineer by a growing Southern Mill. Excellent opportunity for a well qualified man that can express his ideas in the form of workable drawings. Give complete details in reply including: qualifications, experience, salary expected, etc. Address Box P&P-42, Pulp & Paper, 71 Columbia Street, Seattle 4, Wash.

FOR SALE: 1 Only Camachine 20, Winder, 208" trim width, 212" actual drum face, 42" maximum diameter rewind capacity. If interested write Box P&P-41, PULP & PAPER, 71 Columbia Street, Seattle 4, Wash.

COAL, West Virginia or Pennsylvania Nut Slack, Mine Run. THAT BETTER COAL YOU HAVE BEEN LOOKING FOR.

Carload Coal Corp., 55 West 42nd St., New York 18, New York.

PLANT ENGINEER

Large sulphite pulp and paper mill experience, desires consideration for equipment sales connection. Reply Box 29, PULP & PAPER, Seattle 4, Wash.

Michigan Students Visit Detroit Plant

A group of pulp and paper technology students at Western Michigan College were recent guests of the Detroit Sulphite and Paper Co., at the company's Detroit plant. Dwight L. Stocker, president of Michigan Paper Co., and a member of the curriculum advisory committee accompanied the students, as did Dr. A. H. Nadelman, research chemist, who teaches the course, and Dr. L. G. Knowlton of the College's chemistry department.

George N. Carleton, president of Detroit Sulphite; Dr. Roy Davis, general superintendent, and Mark Fetz, chief chemist, conducted the tour through the plant.

Hyster Catalog

A sixteen-page catalogue just released by Hyster Co. describes the revised Model "M" straddle truck with numerous improvements in engineering and design. Greater capacity and visibility for the operator are two reputed features of the new machine.

For additional information write the Hyster Co., Portland 8, Ore., and ask for catalogue Number 1118.

Byron Jackson Pumps

Now available on request to Byron Jackson Co., Pump Division, Terminal Annex, Box 2017, Los Angeles 54, Calif., is a 12-page illustrated bulletin describing that company's new complete line of single and multi-stage vertical circulating pumps.

MANAGER OF MANUFACTURING

required by Canadian mill producing 500 tons per day of Specialty Papers, Tissues, Paperboard and Newsprint.

Position requires proven managerial ability and technical qualifications for the production of paper. The location is most desirable and salary attractive.

Applications giving all essential information will be kept confidential if desired—and should be addressed to

Box No. 33

PULP & PAPER
71 Columbia Street
Seattle 4, Wash.

Samuel M. Langston Co. Enlarges Engineering Dept.

Samuel M. Langston Company of Camden, N. J., manufacturers of paper working machinery, has enlarged their engineering department, providing approximately twice the floor space previously available. A modern fireproof concrete vault also was added to the file and store drawings, bills of materials, engineering records, etc.

A modern illuminating system, using diffused fluorescent lights, was installed. An air-conditioning system was extended.

Langston also recently enlarged their office and will shortly complete another addition to their factory, which will provide approximately 7500 square feet additional manufacturing floor space, as well as locker and rest room facilities.

Florida-St. Regis Merger

Pursuant to corporation laws of New York and Florida, the Florida Pulp and Paper Co. and Alabama Pulp and Paper Co., both near Pensacola, Fla., have been merged into St. Regis Paper Co. of New York.

THE MOVIE COMMITTEE for the Pacific Chemical Exposition is frantically searching for the best industrial and educational movies which can be found and previewed for possible inclusion in the movie program to run continuously at the exposition in the San Francisco Civic Auditorium Nov. 1-5. Write to Lloyd F. Brooke, with the California Research Corp. at Richmond, Calif., chairman of the movie committee, if your company has a movie they might use.

PULP & PAPER